DIOXIN POLLUTION IN THE PIGEON RIVER, NORTH CAROLINA AND TENNESSEE

(100-70)

HEARING

BEFORE THE

SUBCOMMITTEE ON WATER RESOURCES

OF THE

COMMITTEE ON
PUBLIC WORKS AND TRANSPORTATION
HOUSE OF REPRESENTATIVES

ONE HUNDREDTH CONGRESS

SECOND SESSION

JULY 13, 1988

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DIOXIN POLLUTION IN THE PIGEON RIVER, NORTH CAROLINA AND TENNESSEE

WEDNESDAY, JULY 13, 1988

House of Representatives,
Subcommittee on Water Resources,
Committee on Public Works and Transportation,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:12 a.m., in room 2167, Rayburn House Office Building, Hon. Henry J. Nowak (chairman of the subcommittee) presiding.

Mr. Nowak. The subcommittee will come to order. If we could have you take your seats.

This morning the Subcommittee on Water Resources meets to receive testimony concerning dioxide pollution in the Pigeon River of North Carolina and Tennessee, and dioxin pollution from the operation of bleach kraft paper mills.

Our witnesses include representatives from the U.S. Environmental Protection Agency, local officials and other citizens from Tennessee, as well as national and local environmental organizations, and representatives of the pulp and paper industry.

In 1984, the Congress requested EPA to conduct a national dioxin study, the investigation of the extent of dioxin contamination in this country. Dioxin is classified as a probable human carcinogen by EPA. As a result of information obtained during the national dioxin study, EPA began an investigation of dioxin contamination from pulp and paper mills.

A followup study in 1986, conducted jointly with the American Paper Institute, collected and analyzed wastewater and sludge samples from five mills across the country, but none, I might mention, in Region IV where the Pigeon River is located.

The five mill study results were available in October 1987 and indicated dioxin contamination in the effluent of three mills and in the sludge of all five mills examined. Subsequent to the five mill study, dioxin testing has been performed on fish samples from the Pigeon River. Dioxin was found in the fish, including the most recent testing in April 1988.

In addition, EPA and the American Paper Institute are currently testing bleached pulp, treated effluent, and sludge at all 104 bleaching mills in the United States. Of these mills, approximately one-fourth are subject to the more in-depth study to attempt to ascertain how dioxin is being formed.

At this morning's hearing, our focus is on the Pigeon River which flows from North Carolina into Tennessee. We will also hear testimony on the broader issue of dioxin pollution resulting from paper mills utilizing the chlorine bleaching process.

Before we begin with our first witness, I yield to my distinguished colleague from Minnesota, Arlan Stangeland, for whatever opening remarks he wishes to make at this time.

Mr. Stangeland.

Mr. STANGELAND. Thank you, Mr. Chairman.

First let me commend you, and the gentleman from Tennessee, Congressman Quillen, for your leadership on this issue.

Today's hearing should shed some light on the very national—and in this instance, local—concern, dioxin contamination of America's lakes, rivers, and streams and response efforts by EPA and the kraft paper mill industry.

We have a serious situation in the Pigeon River which flows from North Carolina into Tennessee. We may also have a problem nationwide. Certainly, the relationship between dioxin and the pulp and paper industry has invoked national attention.

I think all of us should be concerned about the connection between dioxin and the bleaching process used at pulp and paper mills. Certainly this subcommittee is concerned about the presence of dioxin in rivers, lakes, and streams, and its impact on water quality, fish, wildlife, and most importantly, human health.

We're most interested in efforts by EPA both in Region IV and throughout the country to learn more about dioxin and to respond with appropriate prevention and control measures.

Already EPA and the paper industry have devoted a considerable amount of attention and resources to the issue, to their credit. The paper industry in Champion have responded to recent discoveries of dioxin with numerous studies and specific actions. The national dioxin study—the so-called five mill study—and the current 104 mill study are just some of their efforts to date that will help guide the national response to dioxin.

But clearly, this is not enough by itself. The paper industry and EPA must continue and, in fact, increase their efforts. With Congressman Quillen's help, and the leadership of this subcommittee, we hope to improve the country's knowledge about dioxin generally and in the Pigeon River specifically. Perhaps more cooperation among Federal, State, and local officials, citizens, and industries will result in and ultimately lead to environmentally sensitive, yet sensible, solutions.

Let me close by welcoming all the witnesses. With testimony from the Congressmen, community leaders, representatives of local and national environmental organizations, the Champion Paper Mill, and the API, I think we're bound to have an informative and productive hearing. Hopefully we can find answers to some of these knotty problems.

I thank you.

[Mr. Stangeland's prepared statement follows:]

STATEMENT OF HON. ARLAN STANGELAND

Thank you, Mr. Chairman. Let me commend you and the gentleman from Tennessee, Congressman James Quillen, for your leadership on this issue. Today's hearing should shed some light on a very important national and, in this instance, local concern: dioxin contamination in America's lakes, rivers, and streams and response efforts by EPA and the kraft paper mill industry.

Mr. Chairman, we have a serious situation in the Pigeon River which flows from North Carolina into Tennessee. We may also have a problem nationwide. Certainly, the relationship between dioxin and the pulp and paper industry has invoked national attention. All of us should be concerned about the connection between dioxin and the bleaching process used at pulp and paper mills.

This subcommittee, in particular, is concerned about the presence of dioxin in rivers, lakes, and streams and its impact on water quality, fish and wildlife, and most importantly, human health. We are most interested in efforts by EPA, both in Region 4 and throughout the country, to learn more about dioxin and to respond with appropriate prevention and control measures.

Already, EPA and the paper industry have devoted a considerable amount of attention and resources to the issue. To their credit, the paper industry and Champion have responded to recent discoveries of dioxin with numerous studies and specific actions. The National Dioxin Study, the so-called "5 Mill Study," and the current 104 mill study are just some of the efforts to date that will help guide the national response to dioxin.

But clearly this is not enough by itself. The paper industry and EPA must continue—in fact, increase—their efforts. With Congressman Quillen's help and the leadership of this subcommittee, we hope to improve the country's knowledge about dioxin generally and in the Pigeon River specifically. Perhaps more cooperation among Federal, State, and local officials, citizens, and industries will result and ultimately lead to environmentally sensitive, yet sensible solutions.

Let me close, Mr. Chairman, by personally welcoming all our witnesses. With testimony from Congressman Quillen, EPA, community leaders, representatives of local and national environmental organizations, the Champion Paper Mill, and the American Paper Institute, we are bound to have an informative and productive hearing. By asking questions today, we can help find tomorrow's answers. Certainly, the testimony will prove invaluable as this subcommittee continues its examination of dioxin pollution problems nationwide over the coming months.

Mr. NOWAK. Thank you.

We will now turn to Mr. Sundquist, another member of the committee who has expressed great concern about this problem.

From Tennessee, Mr. Sundquist.

Mr. SUNDQUIST. Thank you, Mr. Chairman.

I would like to welcome my distinguished colleague, Congressman Quillen, to this committee. Congressman Quillen is the dean of our Tennessee delegation. I want to commend him for his leadership and for his efforts to clean up the Pigeon River.

I'm also very pleased to see today so many other distinguished Tennesseans before this committee: the Hon. Jeanne Wilson, the mayor of Newport; the Hon. Ronnie Davis, a very fine State Representative; Mr. Clevenger and Mr. Moore of Cocke County; Mr. Campbell, Newport City attorney; and others.

Mr. Chairman, all of us Tennesseans are deeply troubled by the severe pollution of the Pigeon River. We're especially distraught over the recent evidence of dioxin contamination in the river. I fully concur with the outrage by our colleague from Tennessee. I want to know also why EPA has allowed the tragic and environmental problem to escalate to obscenely hazardous proportions.

It seems to me that EPA should have long ago been monitoring the water quality of the Pigeon River. It could have prevented the excessive, lethal, toxic pollution found in the Pigeon River today.

Mr. Chairman, before a new permit is given to Champion International to operate in Canton, North Carolina, we Tennesseans, and I think this committee, should have some assurances. We want the EPA to determine the full extent of the pollution and the contamination of Pigeon River. We want comprehensive, complete testing for dioxin. We want a solid commitment that our river will be cleaned up and will be kept clean.

I want to thank this committee, Mr. Chairman, and our ranking member for taking on this issue today. This hearing will hopefully prompt the EPA to act responsibly on Pigeon River, an action that may not only save the environment, but may indeed save some lives.

Thank you, Mr. Chairman.

Mr. NOWAK. Thank you very much, Congressman.

We will now move into our witness list. The other members will waive their opening statements and have the right to insert them in the record following the hearing.

We'll move to our first witness, who was mentioned as really the catalyst for this hearing. His great concern was expressed to me on many occasions. Hon. James Quillen, who has looked at this problem and felt this problem from a congressional level, realized that we have, of course, the whole country sitting before us with parts of this problem. His focus really has been the catalyst for this hearing. As we look at not only the Pigeon River, we'll have an opportunity to examine EPA and the processes that they're going through in terms of the whole country.

So Congressman Quillen, we're indebted to you for bringing this to our attention. I think it will be good review. Let me turn to you for any statement you would like to make at this time.

TESTIMONY OF HON. JAMES H. QUILLEN, A REPRESENTATIVE IN CONGRESS FROM TENNESSEE

Mr. QUILLEN. Thank you, Mr. Chairman.

First of all, I want to thank you for calling this hearing this morning, and to thank the ranking member, Mr. Stangeland, for his assistance, as well as other members of the committee, and especially Mr. Sundquist from Tennessee.

Mr. Chairman, it's a real honor to appear before this distinguished subcommittee. Back when I came to the Congress, back in 1963, my first 2 years were on the Public Works Committee. I have fond memories of that service. I shall always hold it deep in my heart.

Mr. Chairman, we have a great delegation from Newport, and Cocke County, TN, through which county the Pigeon flows. They're here today en masse, so interested in this crucial problem. I'm glad to have them. I'm sure their testimony, will be of great interest to your committee.

Mr. Chairman, and members of your subcommittee, we have a serious public health and environmental crisis in east Tennessee because of the gross pollution and dioxin contamination of the Pigeon River in Cocke County in my congressional district.

The Federal agency charged with responsibility in this matter, the Environmental Protection Agency, has failed to discharge its duty. It has failed in its responsibility to protect our citizens and our river. This is why I asked for today's hearing, to get some answers to serious questions which have been raised, and which continue to be raised, about EPA's handling of this distressing situation.

At the outset, I want to express my appreciation, again, to you, Mr. Chairman, and Congressman Stangeland for responding positively to my request for this hearing. Appreciation not so much on my behalf, as on behalf of the people of Cocke County, TN, whom I represent. Both of you have been most cooperative in this matter, as have your competent and helpful staff. I want to express my thanks, and the thanks of the people of Cocke County, for helping us in our efforts to clean up the Pigeon River and remove a severe threat to our health in the form of dioxin.

So what is all the uproar about down in the hills of Appalachia where we come from regarding the Pigeon River, pollution, dioxin, and the EPA's dereliction of duty and responsibility? Why did I request this hearing?

The witnesses you will hear from today will, I believe, explain this in some detail. They will speak for themselves. I will not attempt more now than a brief outline of the situation for the benefit of the subcommittee.

To begin, it needs to be understood that the pollution of the Pigeon River began when the Champion Paper Co. started up its mill operations in Canton, NC, along the river 80 years ago. Since that time down to the present, this once lovely and sparkling clean mountain river has been transformed into a foul-smelling, foaming, sludge-filled mixture that looks like oily coffee and stinks like rotten eggs. This is how Champion makes its money. This is not my opinion. This is fact.

My views on the Champion Paper Co.'s record as a corporate citizen are not important. The company's record speaks for itself. Champion is an important economic asset to the Canton area. I hope this will continue to be true into the future, but on the condition that the company steps forward and fulfills its promises to clean up the Pigeon River. There is no legitimate reason why a multibillion dollar corporation cannot continue to profitably operate its mill at Canton and, at the same time, continue to be an important economic asset to that area, as it has been since 1908.

What we in Tennessee are asking and, in fact, what we are demanding, is that the Champion Paper Co. begin at long last to operate its Canton mill in a manner which does not continue to grossly pollute the Pigeon River and in a manner which does not dump dioxin and other dangerous toxic compounds and chemicals into the river. We simply do not accept the destruction of the river and the present public health crisis as a routine part of the mill's operation.

This having been said, we are mindful that the focus of this hearing is not the mill operation at Canton. We are here to investigate the U.S. Environmental Protection Agency's stewardship of our water pollution laws and particularly its record in regard to the destruction of the Pigeon River and the dioxin only recently discovered in its waters, sediment, and within the aquatic life able to survive in this wretched and degraded environment. And not only Tennessee is affected. Because of the dioxin, the health director of the State of North Carolina has recommended that no fish caught from the Pigeon River between Canton and the Tennessee State line should be eaten.

I have worked with the EPA for many years in an attempt to get the river cleaned up. This situation is one of the most difficult and frustrating I have encountered in my 26 years as a Member of Congress.

In mid-March, it took a nasty turn with the arising of a new and frightening dimension. Dioxin, one of the most dangerous, cancer-causing chemical compounds known, was discovered in fish in the Pigeon River. Immediately it was obvious that we had a far more serious problem that we had thought.

It was apparent that dioxin was generated by the Canton Mill. I proceeded at once to consult with those experienced in paper mill operations on the one hand and with dioxin on the other. What I soon learned was that it is hard to find a chemical compound more dangerous than this one. I further learned that a considerable body of evidence existed that linked dioxin with paper mill operation.

I was floored, then outraged. Here was a lethal chemical compound associated with paper mill operations since at least 1980. After all these years of struggle to clean up the river, the EPA was just getting around to preliminary and unsystematic dioxin testing this past winter. Such dereliction of duty is almost unbelievable. There is no excuse for this failure on the part of the EPA.

Still, the question remains: Why? No one at the EPA ever discussed the possibility of dioxin contamination with me—or anyone else to my knowledge—during all these years of struggle and effort over the wastewater discharge permit despite scientific evidence directly linking the chemical to paper mill discharges. Why?

You must understand that for many years people living along the Pigeon River have feared that the polluted water and contaminated fish were causing the abnormally high cancer rates afflicting their communities. The residents of Hartford, for example, a small river town, point to 167 cancer deaths in their community over the past 20 years. And Mr. Chairman, it's a coincidence today, tying in with the 167 deaths at Hartford, TN, that this hearing is held in room 167 of the Rayburn House Office Building. Whether or not this high career rate is because of the dioxin in the river, we do not know. How long dioxin has been dumped into the river, we do not know. How much dioxin is in the river, we do not know.

Because of these grim factors, and the long and dismal history of contamination of the river by the Canton mill, it seems to me and everyone else who has looked into the situation that the Government officials responsible for water quality standards enforcement should have conducted a comprehensive and thorough series of tests along the entire length of the river long ago. We in East Tennessee want to know why this was not done.

Although it appears to be a good beginning, we also want to be certain that the full dimension of the pollution and contamination of the river be determined before the EPA goes ahead with its consideration of the proposed new permit for the Canton mill. Further, we want to be certain that testing for dioxin will be undertaken on a routine and continuing basis into the future.

I am told that dioxin takes a very long time to break down. We expect the EPA to begin a comprehensive testing program to monitor the situation and to eliminate any more dioxin discharges into the river which contain that chemical. I am told by EPA that these tests are now underway. The first tests were only done last December.

We in east Tennessee have a great many unanswered questions and a number of legitimate fears about the future in view of the history I have described. We expect more from the EPA than we have been getting. We hope this hearing will write a new and happier chapter in the history of the Pigeon River in this century and of the Environmental Protection Agency's recent stewardship of this distressing and obviously dangerous situation.

What we have had from the EPA is not acceptable. The EPA has not conducted itself with prudence, diligence and responsibility. The EPA has failed in its duty. We want to know why. We want a new start.

Again, Mr. Chairman, thank you for this opportunity to testify on behalf of the people I represent. And really, someone has to speak for the Pigeon River. I asked for your help. You have extended a helping hand by holding this hearing. We want this mess turned around. We hope we can begin to do this today because of this hearing.

I'm so happy to be here, so happy that so many people came from Cocke County, and so happy that so many people came representing other groups. I'm happy that EPA is here and representatives of other groups.

Mr. Chairman, thank you for this opportunity.

[Mr. Quillen's prepared testimony follows:]

TESTIMONY OF HON. JAMES H. QUILLEN

Mr. Chairman and members of the subcommittee, we have a serious public health and environmental crisis in east Tennessee because of the gross pollution and dioxin contamination of the Pigeon River in Cocke County in my congressional district.

The Federal agency charged with responsibility in this matter, the Environmental Protection Agency, has failed to discharge its duties, and it has failed in its responsibility to protect our citizens and our river. This is why I asked for today's hearing—to get some answers to serious questions which have been raised, and which continue to be raised, about EPA's handling of this distressing situation.

At the outset I want to express my appreciation to you, Chairman Nowak and to you, Congressman Stangeland for responding positively to my request for this hearing. Appreciation not so much on my behalf as on behalf of the people of Cocke County, TN, whom I represent. Both of you have been most cooperative in this matter, as have your competent and helpful staff, and I want to express my thanks and the thanks of the people of Cocke County for helping us in our efforts to clean up the Pigeon River and remove a severe threat to our health in the form of dioxin.

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My views on the Champion Paper Company's record as a corporate citizen are not important. The company's record speaks for itself. Champion is an important economic asset to the Canton area, and I hope this will continue to be true into the future—but on the condition that the company steps forward and fulfills its promises to clean up the Pigeon River. There is no legitimate reason why a multi-billion dollar corporation cannot continue to profitably operate its mill at Canton and at the same time continue to be an important economic asset to the Canton area, as it has been since 1908.

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This having been said, we are mindful that the focus of this hearing is not the mill operation at Canton. We are here to investigate the United States Environmental Protection Agency's stewardship of our water pollution laws and particularly its record in regard to the destruction of the Pigeon River and the dioxin only recently discovered in its waters, sediment and within the aquatic life able to survive in this wretched and degraded environment. And not only Tennessee is affected. Because of the dioxin, the health director of the State of North Carolina has recommended that no fish caught from the Pigeon River between Canton and the Tennessee State line should be eaten.

I have worked with the EPA for many years in an attempt to get the river cleaned up. This situation is one of the most difficult and frustrating I have encountered in my twenty-six years as a Member of Congress.

In mid-March, it took a nasty turn with the arising of a new and frightening demension. Dioxin, one of the most dangerous, cancer-causing chemical compounds known, was discovered in fish in the Pigeon River, Immediately, it was obvious we had a far more serious problem that we had thought.

It was apparent the dioxin was generated by the Canton mill, and I proceeded at once to consult with those experienced in paper mill operations on the one hand and with dioxin on the other. What I soon learned was that it is hard to find a chemical compound more dangerous than dioxin, and further, that a considerable body of evidence existed that linked dioxin with paper mill operations. I was floored, then outraged. Here was a lethal chemical compound associated with paper mill operations since at least 1980, and after all these years of struggle to clean up the river, the EPA was just getting around to preliminary and unsystematic dioxin testing this past winter. Such dereliction of duty is almost unbelievable. There is no excuse for this failure on the part of the EPA. Still, the question remain: Why?

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Because of these grim factors and the long and dismal history of contamination of the river by the Canton Mill, it seems to me and everyone else who has looked into the situation, that the Government officials responsible for water quality standards enforcement should have conducted a comprehensive and thorough series of tests along the entire length of the river long ago. We in east Tennessee want to know why this was not done.

Although it appears to be a good beginning, we also want to be certain that the full dimensions of the pollution and contamination of the river be determined before the EPA goes ahead with its consideration of the proposed new permit for the Canton Mill. And furhter, we want to be certain that testing for dioxin will be undertaken on a routine and continuing basis into the future. I am told that dioxin takes a very long time to break down, and we expect the EPA to begin a comprehensive testing program to monitor the situation, and to eliminate any more dioxin discharges into the river.

So, we in east Tennessee have a great many unanswered questions and a number of legitimate fears about the future in view of the history I have described. We expect more from the EPA than we have been getting, and we hope this hearing will write a new and happier chapter in the history of the Pigeon River in this century, and of the Environmental Protection Agency's recent stewardship of this distressing and obviously dangerous situation.

What we have had from the EPA is not acceptable. The EPA has not conducted itself with prudence, diligence and responsibility. The EPA has failed in its duty. We want to know why, and we want a new start.

Again, Mr. Chairman, thank you for this opportunity to testify on behalf of the people I represent. And really, someone has to speak for the Pigeon River, too. I asked for your help, and you have extended a helping hand by holding this hearing. We want this mess turned around, and we hope we can begin to do this today because of this hearing.

Mr. NOWAK. Thank you very much, Congressman.

As you can see by the breadth of the testimony that we're going to receive, it's not only going to touch on the Pigeon River, and nationally on this dioxin, but we have international experts that will discuss solutions in other areas and what the probable outcome could be if EPA moves as rapidly as it can on this and all the other situations in the United States. We really do have a national problem to deal with.

Once again, let me thank you for bringing this specific river to our attention. Let me also at this time invite you, if you see fit, to join us here in your old seat, if you will, on the Public Works Committee to ask any questions you may want to of the witnesses that will come before us today.

Mr. QUILLEN. Thank you, Mr. Chairman. [Applause.]

Mr. NOWAK. Our first witness will be from the U.S. Environmental Protection Agency, Ms. Martha Prothro, who is Director of the Office of Water Regulations and Standards. If she will come to the witness table.

Let me ask you, do you want Mr. Bruce Barrett with you at the same time?

Ms. PROTHRO. Yes.

Mr. NOWAK. Mr. Barrett, who is the Director of the Water Management Division, will give a separate statement and then be available to answer any questions that we may pose.

Ms. PROTHRO. Mr. Chairman, if you have no objection, Mr. Barrett will go first.

Mr. NOWAK. I have no objection. I hear no objection from anybody else seated here, so please be free to do so.

TESTIMONY OF BRUCE R. BARRETT, DIRECTOR, WATER MANAGEMENT DIVISION, REGION IV, ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY JOHN MARLAR, CHIEF, FACILITIES BRANCH; MARTHA G. PROTHRO, DIRECTOR, OFFICE OF WATER REGULATIONS AND STANDARDS, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. BARRETT. Thank you, Mr. Chairman.

My name is Bruce Barrett. I am the Director of the Water Management Division in Region IV of the EPA in Atlanta, GA. I am accompanied today by John Marlar, who is chief of my facilities performance branch in Region IV.

I am pleased to be here today to describe to the subcommittee the progress that we're making to clean up the Pigeon River in North Carolina and Tennessee. While the cleanup of pollution is rarely as fast as we'd like to see it, a lot of progress has been made in the past 3 years in terms of agreement on what must be done. The next 3 years will, we hope and believe, see a great improvement in the physical, chemical, biological, and aesthetic quality of the river.

Before I get into the details of this, it is important to review the institutional framework of the Clean Water Act, which is the principal Federal statute being used to initiate the cleanup. The Clean Water Act establishes the concept of State primacy in the water pollution control program through the NPDES permit program. EPA's role is one of oversight, and financial and technical assistance. Both North Carolina and Tennessee, having met the statutory and regulatory criteria from primacy, have the authority and obligation to issue permits, to take enforcement actions, to establish standards for water quality, and to measure and monitor compliance with the established standards.

In our statutory role of oversight, EPA reviews and approves water quality standards established by the States. We also review State-issued permits and compliance actions. EPA has statutory authority to object to State-issued permits when they are legally deficient and to take direct enforcement action where a State's action is not timely or appropriate.

Champion International owns and operates a bleached kraft pulp and paper mill in Canton, NC. The mill has 2,200 employees. It produces envelope stock and paperboard used in milk and juice cartons. It averages production of 1,650 tons per day. The mill was originally constructed in 1908, and discharges treated wastewater to the Pigeon River.

The Pigeon is a high quality mountain stream above the discharge. From the point of discharge, the Pigeon flows in a generally northwest direction for about 35 miles where it enters Cocke County, TN. Some 15 miles later it flows into TVA's Douglas Reservoir. There is a small hydropower reservoir operated by Carolina Power and Light on the Pigeon just before it flows into Tennessee.

In May 1985, the State of North Carolina issued a permit to the Champion mill over the written objections of EPA. EPA's objections related to color removal, to North Carolina's inadequate response to Tennessee's objections, and to procedural defects in the permit issuance process. Because North Carolina failed to resolve EPA's objections, the May permit was invalid. Exclusive authority to issue the Champion permit passed to EPA in November 1985.

The propriety of EPA's objection and EPA's authority to issue the permit were challenged by Champion and by North Carolina, but EPA's position was upheld in Federal District Court in December 1986. This decision was appealed to the 4th Circuit Court of Appeals. Last month the 4th Circuit affirmed that EPA was within its rights to assume permitting authority, and ruled further that the courts have no jurisdiction to review EPA's objections to the North Carolina permit until the Agency itself either grants or denies a final permit. Following the district court's decision, EPA continued with the development of a draft Federal permit.

A permit must be consistent with State water quality standards. Tennessee had previously interpreted its narrative color standard to be 50 apparent color units, but North Carolina had provided no such interpretation. Therefore EPA, based upon commonly accepted levels for color for aesthetic purposes, established 50 apparent color units as the standard applicable to the North Carolina portion of the Pigeon River.

The district court, in the previously mentioned court action, held that this interpretation was not arbitrary. Because of the requirement that permits be consistent with water quality standards, EPA's draft permit required achievement of 50 color units one-quarter mile below the discharge. We were aware of no technology to achieve this level of color reduction, but under law and regulation we had no choice but to proceed. The draft permit was made available for public review and comment on January 9, 1987.

Federal regulations allow EPA to approve permit limits that do not result in the achievement of water quality standards where State law includes the authority to grant a variance from State standards in cases where widespread economic and social impact would result from meeting the standard. Champion may be able to meet this test, but at the time of the above referenced draft permit, it had not applied for nor received a variance from either North Carolina or Tennessee.

Champion stated publicly that it could not comply with the terms of the draft permit, and that if it was issued, it would be forced to close the Canton mill. Resulting unemployment would affect about 2,200 mill employees, and an estimated additional 8,000 service and support jobs.

In the meantime, the issue of dioxin surfaced. In April 1986, the draft report of EPA's National Dioxin Study disclosed that certain pulp and paper mills are a "previously unsuspected possible source" of dioxin based on the results of fish samples collected near some pulp and paper mills. Further evidence that bleach kraft pulp mills might be discharging dioxin became available in 1987 from results of fish sampling in Alabama and from followup sampling of five additional mills prompted by the National Dioxin Study. The first sampling of the Pigeon River was conducted in November 1987, and more extensive sampling has occurred in the first few months of 1988.

The consumption of fish tainted with dioxin is the most likely human health exposure route resulting from such effluents. In the on-going EPA National Bioaccumulation Study, dioxin has been found in the samples of fish collected downstream of pulp and paper mills using chlorine or chlorine derivatives. However, those levels vary considerably.

EPA conducted extensive testing for dioxin in the Pigeon River in April of this year. The results indicated extensive bioaccumulation of dioxin in fish from Canton, NC, to the Tennessee State line. As Mr. Quillen noted earlier, the State Health Director of North Carolina has recommended that fish from this portion of the river not be consumed. Samples from the Tennessee portion of the system in Douglas Reservoir showed dioxin contamination in much lower concentrations. Tennessee health officials have determined that consumption of fish from the lake does not present a public health threat.

If I can, Mr. Chairman, I'd like to deviate from my statement for a minute to report on results that we have just obtained from sampling of both the water and the sediment in the Pigeon River system. The water results came back nondetect at a detection level of 20 parts per quadrillion. So there were no water column samples from either the lake or from the river system itself that tested positive for dioxin. The sediment results in the upper part of Waterville Reservoir—which is the reservoir in the North Carolina portion—showed a contamination level of the sediment of 13 parts per trillion. Three other stations in Waterville Reservoir and all four sampling stations in Douglas Reservoir in Tennessee showed either nondetect or just trace levels, less than 1 part per trillion in the sediments of those portions of the reservoir.

I want to also add that we have been planning, and still plan, some additional sampling of other possible exposure routes. We've been working with the local citizens in Cocke County. We have been told that there are dairy cattle that drink directly from the river in certain locations and that certain crops are irrigated with Pigeon River water. The local citizens have agreed to provide us with information on where these activities are taking place. After we receive this information from them, we do plan some additional sampling of both milk from the dairy cattle, and then the crops that are irrigated to see if there's any accumulation there.

In January of this year, EPA was informed by residents of Hartford, TN of suspected contamination of their drinking water wells by Pigeon River water. EPA has conducted extensive testing to determine the quality of groundwater in the Hartford area. I am pleased to say that all chemical data presently available, as well as geological factors, indicated no contamination of groundwater by the river.

Public hearings were initially scheduled on the draft permit in May 1987, in Canton, NC, Newport, TN. Those hearings were postponed for several reasons. EPA required more time to review recently submitted technical information regarding Champion's ability to remove color. In addition, there had been threats of violence. It became clear that the number of hearing attendees would exceed the capacity of the facilities available in Canton and Newport.

Based on EPA's review of all information received at that time, a revised draft permit was issued on November 30, 1987. The hearings were held in Asheville, NC and Knoxville, TN, in January of this year. An estimated 11,000 people attended those two hearings. We received approximately 160,000 letters. We had petitions with 15,000 signatures. We heard testimony from 202 individuals and groups. The message from the public was loud and clear. EPA, and the States, must find a way to clean up the river and to keep the mill open to avoid economic dislocation. Our subsequent actions were driven by this mandate of the public.

EPA discussed possible solutions to the problem with representatives from North Carolina and Tennessee in February of this year. The States agreed to consider variances to their water quality standards for color. EPA agreed that if variances were granted, it would issue a draft permit requiring a "cap" of 85 true color units at the State line. Both the State's variance processes and the permit issuance process are subject to public participation requirements.

The draft permit discussed would require extensive monitoring for dioxin and would place tight limits on effluent toxicity. To comply with the permit, Champion must change their production process from a chlorine bleach process to the oxygen delignification process. We believe that the process change will substantially reduce the formation of dioxin, primarily because of the substitution of oxygen for chlorine in much of the pulp bleaching process.

Both States are in the variance process. If they both grant the necessary variances for the color standard that EPA can approve under our regulations, we will proceed to issue a permit consistent with State and Federal requirements. We hope to issue a final permit later this year. Issuance will trigger mill reconstruction and, when finished 3 years hence, will result in the cleanest Pigeon River in over 80 years.

Mr. Chairman, we at EPA are committed to the cleanup of the Pigeon. We will work with the States to restore the river and keep the mill open. Thank you, sir.

Mr. Nowak. Thank you very much.

Would you like to proceed now, Ms. Prothro?

Ms. Prothro. Yes. Thank you.

Good morning. My name is Martha Prothro. I am Director of the Environmental Protection Agency's Office of Water Regulations and Standards here in Washington, DC. I am here today to describe my office's nationwide initiatives concerning the chemical compound dioxin. These initiatives led to the discovery of dioxin contamination in the Pigeon River, as Mr. Barrett just described.

Dioxins are unwanted byproducts in the manufacture of chemical products, in certain combustion processes, and in chemical wood pulp bleaching operations.

Several of the dioxins are highly toxic, especially the compound known as 2,3,7,8-TCDD. I won't use that term again. Based on animal studies, EPA considers this particular compound to be a probable carcinogen in humans, as has already been noted here.

EPA's regulatory efforts with respect to dioxin began in the early 1970's when the Agency initiated proceedings to cancel the registration of certain pesticides uses known to be major sources of dioxin. In 1983, due to new information on the persistence of dioxins in soils and sediments, EPA issued a dioxin strategy. The strategy included a broad national study of dioxin and its associated risks, enforcement and cleanup actions, and evaluation of regulatory and disposal alternatives. The National Dioxin Study included the investigation of production and disposal sites for the pesticides of concern. Waste combustion facilities were also investigated. We also analyzed over 4,000 samples of soil, sediment,. fish, water, plants, and animals from 862 sites nationally. As a result, further sampling, cleanup actions, emergency removals, or the issuance of health and fish advisories were initiated at 53 sites where potential exposures presented cause for concern.

A major, previously unexpected finding of the National Dioxin Study was that dioxin was present in fish downstream from 57 percent of the pulp and paper mill sites sampled. To follow up on this new data, we sampled sludge at 22 pulp and paper mills in Wisconsin, Minnesota, and Maine in late 1985. It appeared that dioxin was probably being formed as a byproduct during the bleaching of wood pulp with chlorine or chlorine derivatives. In March 1986, we asked the mill where the highest levels were found to cooperate in an extensive dioxin study.

The American Paper Institute and the National Council of the Paper Industry for Air and Stream Improvement asked to participate in our work in this regard. They urged that the study be expanded from one to five mills. The industry agreed to fund a portion of the project and to supply detailed process information for each mill selected for study. In June 1986, EPA and industry representatives agreed on a Cooperative Dioxin Screening Study, often referred to as the "Five Mill Study." The cooperation of the industry at this stage helped assure a more expeditious sampling program. EPA, however, retained its authority to require additional data, if necessary, under the Clean Water Act. Full scale sampling of the five mills began in June and ended in January 1987.

At the same time, EPA improved analytical methods so that additional dioxin and furan compounds could be analyzed at lower detection levels. EPA gave Congress preliminary results from this five mill study along with the National Dioxin Study Report in September 1987. Dioxins and/or furans were found in the effluents of four of the five mills, the pulps of all five mills, and the wastewater treatment plant sludges of all five mills. EPA published the final report for the five mill study in May of this year.

Because we found dioxin in the pulps at the five mills, it appeared necessary to consider the possible health impacts of the presence of dioxin in some consumer and food packaging products. We therefore provided this information to EPA's Office of Toxic Substances and to other Federal agencies, including the U.S. Food and Drug Administration and the Consumer Product Safety Commission. An interagency group then agreed to follow up on the five mill study by further characterizing dioxin levels at mills bleaching pulp with chlorine. At about the same time, the industry expressed interest in cooperating. In November 1987, we set out the data needs of the various Federal agencies. A cooperative approach to gathering that information was developed.

After public notice on this study proposal on April 25, 1988, the cooperative agreement was signed by all parties. There are 42 companies representing 104 mills now participating. Each company will give EPA its dioxin and furan data, plant process information, information on wastewater treatment and sludge disposal, and 5-day composite sampling results on effluents, sludges, and pulps. Sampling has already begun. Processed information is coming in now.

Again, the industry's willingness to cooperate in the 104 mill study assured an expeditious information gathering process. By agreement, the industry is funding the total project. EPA is specifying consistent sampling and analytical protocols and reporting methods to be used and is auditing all stages of this study. Industry will submit to EPA more extensive information for 25 of the 104 mills. If any of the companies should fail to cooperate, or if additional information is needed, EPA will exercise its authority under section 308 of the Clean Water Act to require that all necessary information be developed and provided to us. EPA will release the results from this study as information becomes available. We expect to have all of the agreed upon analytical data by the spring of 1989.

In addition to the efforts already described, my staff is assessing treatment technologies to reduce dioxin levels. One potential technology for reducing dioxin discharges is oxygen delignification, a bleaching process using oxygen prior to chlorine bleaching. This summer we will be sampling several mills that use oxygen delignification. We plan to study all new data and to revise, as appropriate, the national pulp and paper mill effluent limitations guidelines.

Another study, the National Bioaccumulation Study, was initiated in July 1986 to determine whether fish tissue has been contaminated by any of about 65 pollutants of concern, including dioxins and furans. We are looking at approximately 400 sites to discover whether pollutants might bioaccumulate in the aquatic food chain. Final results on all of this data should be available by the spring of next year.

To date, this study has detected dioxin in fish tissue collected near 36 pulp and paper mills using chlorine to bleach pulp. No dioxin was detected in fish tissue collected near three of the mills tested. Levels in the whole fish samples ranged from less than 1 up to 118 parts per trillion.

Detectable levels in the fillet samples, the edible portions of the fish, were generally much lower than those found in the whole fish samples. The levels in the fillets from these samples were found to be below the FDA action level of 25 parts per trillion. However, in certain areas, including the area in the Pigeon River in North Carolina, State Health agencies have issued fish consumption advisories. Also, new data on fish tissue levels of dioxins are continuing to come in, including the recent data that Bruce Barrett just described from the Region IV Study in the Pigeon River.

Finally, EPA is developing a long-term NPDES permitting strategy for pulp mill dioxin discharges. We plan to issue final guidance to EPA regions and the States after review of the effluent, sludge, and pulp data from the cooperative study. In the meantime, permit writers will be taking appropriate action to modify NPDES permits for mills where dioxin is detected. Appropriate permit requirements may include effluent limits on dioxin, additional effluent and/or water quality monitoring, reopener provisions to allow for more stringent controls, and further studies on treatment technologies.

My staff has made itself available to provide technical assistance to State and EPA regional permit writers. We will also be working with States to assure expeditious adoption of State water quality standards for dioxin on the affected stream segments.

This concludes my prepared testimony. I have only summarized that testimony. A written statement has been provided for the record. I'll be happy to answer any questions.

Thank you.

Mr. NOWAK. Thank you very much.

Are there any other statements that anyone wishes to make at this time at the witness table?

[No response.]

Mr. NOWAK. Let me first ask about this. You talked about the oxygen process. My understanding is that internationally this has been achieved—a changeover into that process—with very satisfactory results in such places as Sweden. I'm wondering about the levels which are coming in at the numbers that we've found so far in the frequency, and if this is not going to be a part of the permitting process, or at least a suggestion that this oxygen process be used. And then, further test that both upstream, downstream, and through the sludge that's produced. Is that an avenue that you're looking at and going into?

Ms. PROTHRO. Yes, sir.

We are looking very hard at the option of oxygen delignification. We are not convinced that it's the only way to control, nor do we have enough data now to assure ourselves that the oxygen delignification process by itself will eliminate the problems from dioxin. But it certainly—based on the limited data that we have now—shows some promise. From the United States, we really have only one data point that I'm aware of that shows us what the reduction in dioxin levels would be as a result of the conversion. I believe it shows about a 50-percent reduction in dioxin discharges as a result of the process change.

In Sweden, my understanding is that they are measuring for total chlorinated hydrocarbons. They do not look at dioxins separately. But they are embarked upon a process of having their plants switch over to the new oxygen delignification process in a 15-year timeframe.

Mr. NOWAK. I think we will have further testimony on that from some other witnesses who have had the occasion to look at those results over there.

Ms. PROTHRO. Yes.

Mr. NOWAK. Perhaps we can also see if there isn't another method. Let me ask you this. Is the cost the big factor in the switching over to the oxygen process? Are the companies alleging that this is going to increase their overhead to a degree that they're not competitive? Has this been part of the picture?

Ms. PROTHRO. Yes.

From what we've seen so far, the costs and the capital investment to change the process are considerable. We have not yet received detailed cost information on this. But I understand that the estimates in the Champion case ran from $100 million to $200 million for the capital investment. It appears, however, that as far as the continued operation of the mills, the oxygen delignification process may, in fact, be more economical to operate than the chlorine bleaching process.

Mr. NOWAK. Well, your further testing not only in the Pigeon River, but nationally, I would assume is going to shed more light as you're broadening the availability of that data.

Ms. PROTHRO. That's correct.

Mr. NOWAK. One of the witnesses that will come before us today is concerned about the joint testing program that's been adopted. I wonder if you could comment on how those results are kept independent of the industry themselves by EPA when the testing is done jointly?

Ms. PROTHRO. Yes.

Well, we have an audit program that we use whenever we embark upon a sampling program where industry is involved. We retain the right to come in and observe the sampling, the analysis, and the gathering of any process data. In fact, we will be observing some of those activities. The industry will be following a quality assurance/quality control program that EPA has specified.

The actual analytical work will be done by Wright State University, which is the same laboratory that developed the analytical methods that we've been using in the last couple of years for dioxin analysis.

We're confident that we've got a good program here that is independent and that will assure high quality control. I should point out, however, that we retain the right to come in and do our own testing and analysis at any point in the process should there be some concern raised with any particular samples that we look at.

Mr. NOWAK. I have other questions on that particular point that I'll be submitting. I just want all the members to know we're going to keep this record open for submission of questions. We have a long list of witnesses today. But we will be trying to examine that question a little more closely.

At this time, for the convenience of other members, let me turn to Congressman Stangeland for 5 minutes of his questions. I would ask every member to keep questions, initially, down to 5 minutes. We will have the opportunity to submit any other questions for detailed answers for the record in the future.

Mr. STANGELAND. Thank you, Mr. Chairman.

Mr. Barrett, has the EPA or any other Federal agency done a health assessment or population survey to evaluate the cancer threat posed by the Pigeon River contamination? If so, what were the results of those studies? Are you doing any followup?

Mr. BARRETT. Mr. Stangeland, we have not ourselves done that. The State of Tennessee has done some epidemiological studies in the Hartford area where it was reported to have a higher than normal cancer death rate. I do not know the final results of the work that they have done in that area. As far as I know, their evaluation of that is still ongoing.

Mr. STANGELAND. Are they seeking any assistance from the National Institutes of Health, the Centers for Disease Control, or any Federal agency that might assist them?

Mr. BARRETT. Not that I'm aware of, sir.

They have within their State epidemiologists, medical doctors that do that kind of thing. Whether or not they have sought help from other Federal agencies, I'm not sure.

Mr. STANGELAND. Ms. Prothro, under the regulatory strategy outlined in your statement, EPA will be evaluating individual permits for bleach kraft paper mills as they come up for renewal. What is your strategy for mills which may not be up for permit renewal for some time? Do you have the authority to step in and require changes in existing permits if you discover a serious health threat at a plant that's not up for permit renewal?

Ms. PROTHRO. Yes, sir.

The authority to reopen a permit when a health threat is discovered is very clear in our regulations. We certainly reserve the right to do that. As this data becomes available, there will be some reopeners of some of the permits. There are quite a few of them that are up for renewal now, however.

Mr. STANGELAND. Is anything being done to require that the other plants change their bleaching processes?

Ms. PROTHRO. At this time, to my knowledge, there has been no specific permit written to require a change in process as yet. I believe this is partly, at least, because we are still in the process of evaluating the technology. We're not convinced that oxygen delignification, for example, is, in fact, the answer. It would require considerable investment. We don't want to require that without being certain that that is the way to solve the problem.

Mr. STANGELAND. It is my understanding that while dioxin has been shown to cause cancer in laboratory animals, a clear link to cancer in humans has not been shown, or at least the link to human cancer is still in dispute.

Can you give us EPA's assessment of the relationship between cancer and dioxin? Tell us what EPA and other Federal agencies are doing to evaluate the health threat posed by dioxin.

Ms. PROTHRO. Well, I'm not an expert in the health field, Mr. Stangeland. However, I can tell you that the results that we have now are all animal studies as far as the cancer issue is concerned.

There is some dispute now—I suppose you could call it a dispute, or at least a debate—going on among some of the Federal agencies about the potency level of dioxin as a carcinogen. There has been a suggestion that maybe the potency level should be reduced by something like a factor of 16 times. But even if that were done, and we are evaluating that now, it would still be a very potent, toxic chemical compound.

I believe it was just last week that the Federal agency published in the Federal Register an announcement that we are taking another look at the potency factor for dioxin. That could affect our final regulatory levels for the chemicals.

Mr. STANGELAND. I understand that some have criticized EPA for working with the paper industry in developing a strategy to respond to the discovery of dioxin downstream of the mills. The charge of some has been how EPA has conspired with industry to limit the scope of this study, or to prejudice study results. Would you care to respond to those charges? In that regard, could you give us your assessment of what steps EPA could have taken, or would have taken, had API not come forward to voluntarily address the problem?

Ms. PROTHRO. Mr. Stangeland, I've looked into this as carefully as I could. I've questioned many of the people who have been involved in discussions with the paper industry from early on in this process. I'm convinced that the people involved are very dedicated civil servants with a high degree of integrity. Their concern was to get the data as quickly as possible.

If EPA had gone without the industry's cooperation to get the data, we would have had to use our legal authorities and possibly even go to litigation to enforce the requirements to obtain the data. There could have been very lengthy delays. We still might not have some of the data that we have in hand now. So I think from everything I can tell, it was all done in the interests of expedition. I don't believe these charges of collusion are at all well founded.

Mr. STANGELAND. Thank you, Mr. Chairman.

I'll defer further questions for later.

Mr. **Nowak**. Thank you very much, Mr. Stangeland.

We have a vote on the floor. It will ring for the second time, indicating 10 minutes to record our vote. At this time, let me call for a short recess. Hopefully all the members can vote and come right back to continue the questioning. We stand in recess.

[Recess.]

Mr. **Nowak**. The subcommittee will come to order. We could have everybody take their seats.

Pursuant to the agreement that we will have the five minute rule in effect, let me at this point turn to Mr. Sundquist of Tennessee for any questions he may have for the EPA Panel.

Mr. Sundquist.

Mr. **Sundquist**. Thank you, Mr. Chairman.

EPA has been criticized for not acting more quickly to test for dioxin in the Pigeon River. Can you give us any idea how long dioxins have been discharged into that river? Can you tell us how long EPA has had a testing procedure and the testing equipment which is sensitive enough to detect dioxin?

Mr. **Barrett**. Presuming that Champion has used their same manufacturing process, Mr. Sundquist, since the mill was opened in 1908, I would presume that dioxin has been discharged all that time. As I indicated in my statement, we did not really become aware of the fact that pulp and paper mills produced dioxin until a year or two ago. In my own personal case, it was about a year ago when I was personally aware that that problem was there.

Regarding the testing procedures, there has been over the past four or five years a great change in the detection levels for dioxin. I don't have the precise figures with me. I'm not a chemist, but as I also mentioned in my statement, we can sample down into the parts per quadrillion range. When I went into this business 25 years ago, I thought parts per million were small numbers, and they are. Parts per quadrillion is so small that it's hard to grasp the concept of it. Five years ago, the detection levels were more like parts per billion. So there's been a great change in the analytical capability just in the past few years.

Mr. **Sundquist**. Thank you.

Now you said earlier—one of you said in your testimony—that you tested the water and didn't find any dioxin. You found dioxin in the sludge. Is that correct?

Mr. **Barrett**. We found no dioxin in the water column of the Pigeon River and the two reservoirs, Waterville Reservoir——

Mr. **Sundquist**. Has anybody ever found dioxin in water?

Mr. **Barrett**. Yes.

Mr. **Sundquist**. They have?

Mr. **Barrett**. Yes.

Mr. **Sundquist**. I thought you had to find it in objects like fish, or sludge. You can test it in water?

Mr. **Barrett**. You can, and it can be there. It has a low solubility. You normally don't find it in the water column. It's true that dioxin does have an affinity for solid particles and tends to attach itself to solid particles.

Mr. **Sundquist**. If you had been testing since 1908 with the present testing methods in water, you probably wouldn't find it if you couldn't find it this time, correct?

Mr. **Barrett**. That's probably true.

Mr. **Sundquist**. So we can just about disregard the tests that you made in water.

In 1985, my understanding is EPA tested in Cataloochee Creek—are you familiar with any of those tests for dioxin in 1985?

Mr. **Barrett**. No, sir. I'm not.

Mr. **Sundquist**. For the record, would you submit what EPA did at Cataloochee Creek in 1985 in testing for dioxin? The reason I bring that up is that testing in Cataloochee Creek is far removed from the river itself. I'd like to know, for the record, why you tested there. Why didn't you test in Pigeon River?

[The information follows:]

Question From Congressman Sundquist

Question. Would you submit what EPA did at Cataloochee Creek in 1985 in testing for dioxin?

Response. Cataloochee Creek was sampled for fish as part of Tier 7 of the National Dioxin Study during 1984. Tier 7 sites were control sites where contamination from 2,3,7,8,-TCDD was not suspected. A bottom feeding wholebody analysis was conducted on fish collected from Cataloochee Creek. Dioxin was not found to be present at a detection level of 0.6 parts per trillion (ppt). The Pigeon River was not sampled because paper mills were not suspected as a source of dioxin until after the National Dioxin Study was completed.

Mr. **Sundquist**. It is my understanding, that the State of Tennessee had some tests run. By an epidemiologist? Are you familiar with those tests?

Mr. **Barrett**. The State of Tennessee has done some statistical studies in and around the community of Hartford trying to determine if there is an increased level of cancer incidence in that area.

Mr. **Sundquist**. But not of the river itself? The State has not ordered any tests of the river by an epidemiologist?

Mr. **Barrett**. No, sir. I'm not aware of any test by an epidemiologist of the water itself, no.

Mr. **Sundquist**. So what were the State decisions based on? And weren't the States decisions being, overseen by EPA?

Mr. **Barrett**. I'm not clear what your question is.

Mr. **Sundquist**. Wasn't there an agreement between the States as to how they were going to proceed?

Mr. **Barrett**. Oh, on the permit, yes.

Mr. **Sundquist**. All right.

Mr. **Barrett**. We had some discussions with both North Carolina and Tennessee on the permit.

Mr. **Sundquist**. On the permit?

Mr. **Barrett**. On the permit, yes.

Mr. **Sundquist**. You approved the permit tentatively?

Mr. **Barrett**. We discussed a new permit with North Carolina and Tennessee.

Mr. **Sundquist**. OK. When you reviewed and approved the permit, passed on the agreement between the States for the permit, what was that based on from EPA's perspective?

Mr. **Barrett**. It was trying to arrive at a permit that was meetable by the company.

As I indicated in my statement, we knew that the permit that required 50 color units a quarter mile below the discharge was not meetable. But because of the law and regulation, we had no choice but to write the permit along those lines. Once it became clear that the mill would have to close because they couldn't meet that permit, we began to have discussions with the two States along the lines of a permit that would be able to be complied with by the company. We had the discussions with Tennessee and North Carolina back in February of this year.

Mr. SUNDQUIST. Did you know anything about the dioxin problem then?

Mr. BARRETT. Yes, sir. We did.

Mr. SUNDQUIST. OK.

Did the question of dioxin come up to either Tennessee or North Carolina in those discussions?

Mr. BARRETT. It certainly did. The solution to the problem that we came up with was to require the company to convert their manufacturing process from the chlorine bleaching process to oxygen delignification process.

Mr. SUNDQUIST. That requirement was based on what kind of tests? And who made the test?

Mr. BARRETT. It was based on no tests.

Mr. SUNDQUIST. Well, how did you know dioxin was a problem then, if you didn't do any tests?

Mr. BARRETT. We were in the process of sampling for dioxin at that time. We felt that it was likely that dioxin was present. Because we knew that dioxin is a public health threat, we felt like we needed to require the company to go to a process that would reduce the level of dioxin in the discharge.

Mr. SUNDQUIST. So you gave tentative approval to the permit based on the fact that you thought dioxin was present, but did no testing.

Mr. BARRETT. We were doing testing on a parallel track.

Mr. SUNDQUIST. When was the testing completed?

Mr. BARRETT. The fish samples were taken in April of this year. The next month, in May, the water and sediment samples were taken.

Mr. SUNDQUIST. Why would you tentatively approve a permit if you haven't completed your tests?

Mr. BARRETT. Because that was the quickest way that we knew of to reduce the threat of dioxin in the river. We were fairly certain that dioxin was there based on the results of the earlier studies that had been described.

Mr. SUNDQUIST. What studies?

Mr. BARRETT. The five mill study that Ms. Prothro described a little earlier.

Mr. SUNDQUIST. Who conducted that?

Mr. BARRETT. EPA did.

Mr. SUNDQUIST. On dioxin?

Mr. BARRETT. Yes.

Mr. SUNDQUIST. So you did. In February you had done some tests?

Mr. BARRETT. On some other mills.

Mr. SUNDQUIST. But not on this one?

Mr. BARRETT. No, sir.

Mr. SUNDQUIST. OK.

Now if someone was testing for the State who is a veterinarian and not a clinical epidemiologist, would you give that much credibility?

Mr. **Barrett**. I can't respond to that.

Mr. **Sundquist**. Why not?

Mr. **Barrett**. I don't have any information about the capabilities of the State epidemiologist. I assume they've got a variety of——

Mr. **Sundquist**. Would you send somebody out for EPA who is a veterinarian and not a clinical epidemiologist?

Mr. **Barrett**. Probably not.

Mr. **Sundquist**. Mr. Chairman, I'm sorry I took so much time. I'll pass and come back.

Thank you.

Mr. **Nowak**. Thank you.

We will, again, have the record open for further statements.

Perhaps, if the gentleman from Tennessee would like, we could request EPA to obtain a listing of the epidemiologists that had taken those samples in North Carolina or in Tennessee for the State to see the degrees that are required and who actually performed the testing. That's available, is it not?

Mr. **Barrett**. Sir, I think there's a little mixup here.

The testing of the water, the fish, and the sediment was done by EPA in consultation with water quality agencies and the wildlife agencies in both North Carolina and Tennessee.

The epidemiological studies that are being referred to were studies undertaken by the State of Tennessee to determine if there was a higher incidence of cancer in the community of Hartford.

Mr. **Nowak**. Would the gentleman like to ask any further questions?

Mr. **Sundquist**. Thank you, Mr. Chairman.

No. I understand that. I was just questioning the credibility of those tests, given their backgrounds, to ask the right kind of questions in Hartford?

Mr. **Barrett**. I don't know——

Mr. **Sundquist**. And what credibility you give to those kinds of tests?

The other point I wanted to make was that EPA did not make the test before they made a decision. That sort of bothers me.

Thank you, Mr. Chairman.

Mr. **Nowak**. Thank you.

What we would like, I would think, for the committee's sake and for the record's sake is to have those records supplied to the committee, a copy of those tests. Submit it to the committee.

[The information follows:]

Environmental Epidemiology
Robert V. Taylor, D.V.M., M.P.H.
July 8, 1988

An Evaluation of Cancer Mortality in Hartford, TN

Summary

In May and June 1988, a cancer rate evaluation for Hartford, Tennessee was conducted using mortality data from the Center for Health Statistics and census data collected by Environmental Epidemiology. The objective of this evaluation was to determine if there was a difference in cancer mortality between people living near the Pigeon River and the people living elsewhere in the Hartford Postal Delivery Area. All death certificates were reviewed twice for Hartford covering the 1968-1987 period. Seven cancer related deaths occurred over this twenty year period along the Pigeon River. The population along the Pigeon River was 120 people on June 7, 1988. Twenty-five cancer related deaths occurred over this twenty year period for the remainder of Hartford. The population for the remainder of Hartford was 647 people on June 7, 1988. Cancer mortality evaluations over a 3 year, 10 year, and 20 year period all showed no statistically significant difference.

The cancer mortality rates in the Hartford river population were not significantly higher than the corresponding rates for the people residing in the remainder of Hartford. Because of the low number of deaths that were available for assessing the risk of cancer in the Hartford area, more meaningful analyses based on cancer morbidity should be completed as soon as Tennessee Cancer Registry data are available.

Introduction

This cancer rate evaluation is a result of inquiry from Hartford residents living near the Pigeon River. Local residents had nicknamed the community Widowville during 1987. Hartford is a rural community located in the Cherokee National Forest in Cocke County near the North Carolina line on Interstate 40. The Hartford Postal Delivery area has a population of approximately 777 people. At the request of the Tennessee Department of Health and Environment through the Bureau of Environment, Environmental Epidemiology designed a cancer mortality evaluation plan to determine if there was a significant difference in cancer mortality rates between people living near the Pigeon River and the people living elsewhere in Hartford. It had already been determined in April 1988 that the cancer mortality rate for the entire Hartford Postal Delivery Area was within the normal range from 1977-1986. There was also a fairly even distribution of cancer types from 1979-1986, the period for which this data is available.

Methods

A house to house survey of the Hartford area was conducted. The river people were defined as living along the Pigeon River to Bluffton Bridge, Mill Creek Road, Grassy Fork Road to the intersection with Black Mountain Road, and Hollow Road to the intersection with Barnes Valley Road. The control group was defined as the rest of the people in the Hartford postal delivery area which includes Grassy Fork. The cancer death rate evaluation period was 1968-1987. The cancer death rate for the people living along the Pigeon River was compared with the death rate of the other people living in the Hartford postal delivery area using death certificates acquired from the Tennessee Department of Health and Environment, Center for Health Statistics, as the source of cancer deaths. A cancer death case must be from a death certificate with Hartford as the location of residence, and with cancer as an immediate cause of death or as a contributing condition during the 1968-1987 period. It was determined that cancer mortality rates could be calculated for the 1968-1987 period if we assume the population from the 1988 census was representative of the population for Hartford during 1968-1987.

This cancer mortality evaluation excludes the people who: lived in Hartford and developed cancer, then moved and died elsewhere; lived in Hartford and moved, then developed cancer and died; or developed cancer and are still living.

Cancer death rates were computed for both groups (river people and rest of community) covering a 3 year period (1985-1987), 10 year period (1978-1987), and 20 year period (1968-1987) using the standardized mortality ratio (SMR) at the 95% confidence level as the method for comparison.

Results

There were 130 people living in the Hartford area along the river. They experienced 7 cancer related deaths as defined above during the 1968-1987 period. See Figure 1. There were 647 people living in the rest of Hartford. They experienced 25 cancer related deaths as defined above during the 1968-1987 period. Using the expected cancer deaths of 5.473 for the river people, the standardized mortality ratio (SMR) can be calculated. See Table 1a The observed deaths (7) divided by the expected deaths (5.473) gives an SMR of 1.28. With the 7 observed deaths the standardized mortality ratio (SMR) must exceed 2.49 in order to be statistically significantly increased at the 95 per cent confidence level.[4]

The 10 year SMR (1978-1987) shows expected deaths of 3.073, and 5 observed cancer deaths. See Table 1b This gives an SMR of 1.63. With 5 observed cancer deaths the SMR must exceed 3.09 in order to be statistically significantly increased at the 95 per cent confidence level.[4]

The 3 year SMR (1985-1987) shows expected deaths of 1.503, and 3 observed cancer deaths. See Table 1c This gives an SMR of 2.00. With 3 observed cancer deaths the SMR must exceed 4.85 in order to be statistically significantly increased at the 95 per cent confidence level.[4]

The age distribution of people living along the Pigeon River was not significantly different from those living elsewhere in Hartford. See Table 2.

The death certificates for the entire Hartford Postal Delivery Area show 31 cancer deaths out of the 777 total population (1988 census) from 1968-1987 for a cancer mortality rate of 199 per 100,000 people per year which is higher, but not statistically significantly higher than Cocke County or Tennessee. See Figure 2. The average crude cancer death rates for Tennessee, Cocke County, and Hartford for 1970-1986 are 185.5, 170.6, and 196.3 per 100,000 population per year respectively.

Conclusion

The objective of this evaluation was to determine if there was a difference in cancer mortality between people living near the Pigeon River and the people living elsewhere in the Hartford Postal Delivery Area. The cancer mortality rates were not statistically significantly different for the two groups of people. However, for 1968-1987, the cancer mortality rate for the Hartford river area was 269 per 100,000 per year (7 deaths/130 population) compared to 193 per 100,000 per year (25 deaths/647 population) for the rest of Hartford. This is not a significant increase as determined by statistics. The cancer mortality rates over the last 10 years were 385 per 100,000 per year (5 deaths/130 population) for the Hartford river area versus 216 per 100,000 per year (14 deaths/647 population) for the rest of Hartford, and over the last 3 years were 769 per 100,000 per year (3 deaths/130 population for the Hartford river area versus 309 per 100,000 per year (6 deaths/647 population) for the rest of Hartford. This could occur strictly by chance because of the low numbers of cancer deaths (7, 5, and 3).

Because of the low number of deaths that were available for assessing the risk of cancer in the Hartford area, more meaningful analyses based on cancer morbidity should be completed as soon as Tennessee Cancer Registry data are available.

References

1. Foundations of Epidemiology, 2nd Edition, 1980, Oxford University Press. Lilienfeld, Abraham M. and David.

2. Tennessee Vital Statistics, 1970-86, Tennessee Department of Health and Environment, State Center for Health Statistics.

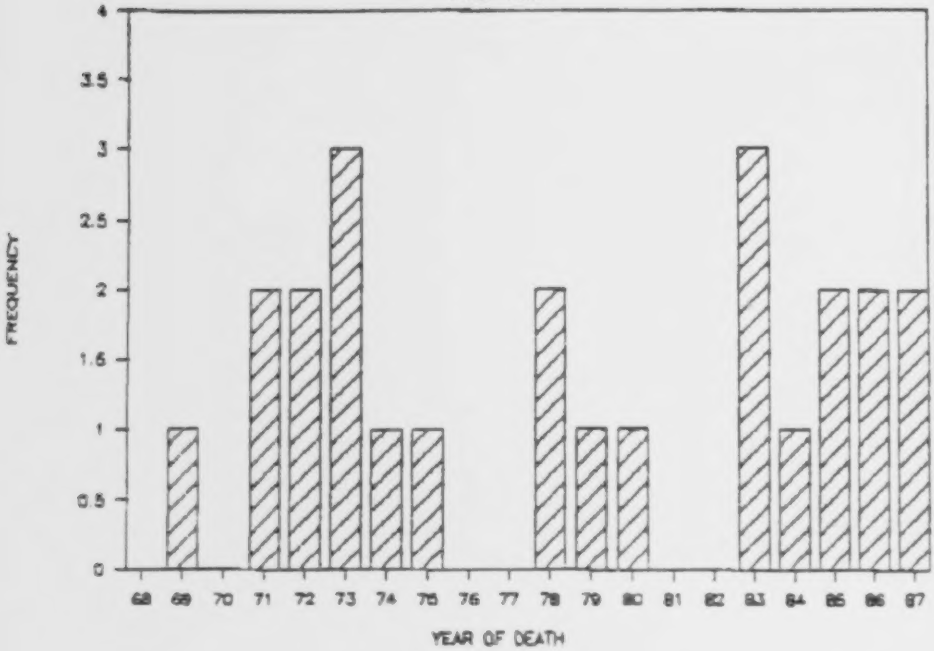
3. 1988 Facts and Figures, American Cancer Society.

4. Significance Factors for the Ratio of a Poisson Variable to its Expectation, Biometrics Journal, September 1964, p. 639-43, John C. Bailar, III, M.D.

Figure 1

CANCER MORTALITY – HARTFORD CONTROL

1968–1987



CANCER MORTALITY – HARTFORD RIVER

1968–1987

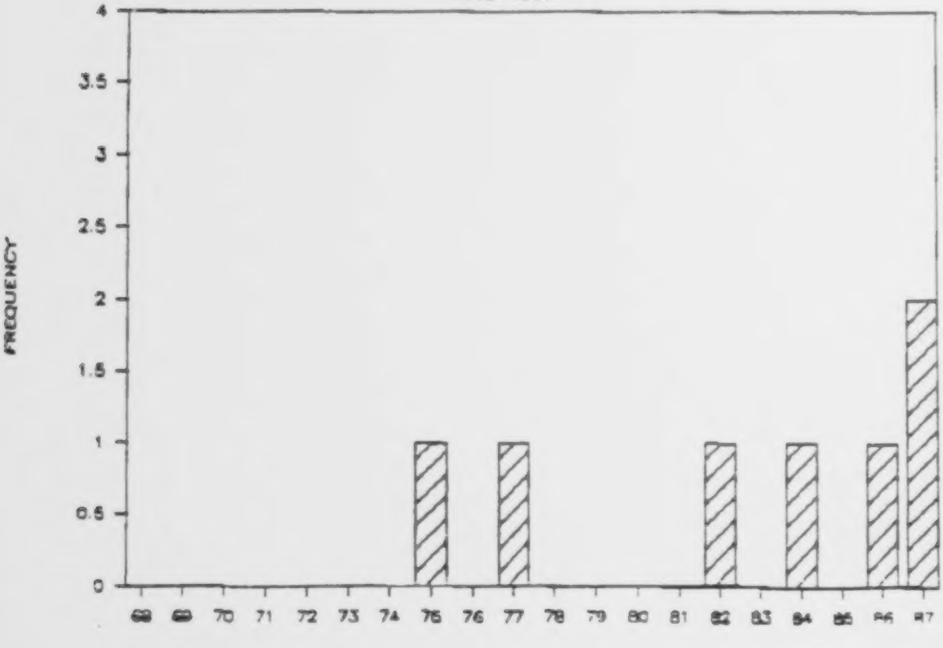


Table 1a

Standardized Mortality Ratios of Observed and Expected Numbers of Cancer Deaths in Hartford River and Hartford Control, 1968-1987

Age Group	Total Population	Total # of Cancer Deaths	Age Specific Death Rates per 100	Hartford River Population	Expected Cancer Deaths for Hartford River According to Rates for Total Hartford	Observed Cancer Deaths for Hartford River Population
1-10	80	0	0	11	0	0
11-20	139	0	0	30	0	0
21-30	117	0	0	15	0	0
31-40	112	1	0.89	16	0.142	0
41-50	91	3	3.30	25	0.825	1
51-60	78	5	6.41	13	0.833	3
61-70	60	7	11.67	13	1.517	1
71-80	42	9	21.43	6	1.286	2
81-90	8	7	87.50	1	0.870	0
91-100	1	0	0	0	0	0
All Ages	728	32		130	5.473	7

20 yrs (1968-1987)
Expected Deaths = 5.473
Observed Deaths = 7
SMR = observed/expected = $\frac{7}{5.473}$ = 1.28

The standardized mortality ratio (SMR) must exceed 2.49 at the 95% confidence level.

Therefore, the cancer mortality rate is not statistically significantly increased.

Table 1b

Standardized Mortality Ratios of Observed and Expected Numbers of Cancer Deaths in Hartford River and Hartford Control, 1978-87

Age Group	Total Population	Total # of Cancer Deaths	Age Specific Death Rates per 100	Hartford River Population	Expected Cancer Deaths for Hartford River According to Rates for Total Hartford	Observed Cancer Deaths for Hartford River Population
1-10	80	0	0	11	0	0
11-20	139	0	0	30	0	0
21-30	117	0	0	15	0	0
31-40	112	1	0.89	16	0.142	0
41-50	91	1	1.10	25	0.275	1
51-60	78	4	5.13	13	0.667	2
61-70	60	3	5.00	13	0.650	1
71-80	42	5	11.90	6	0.714	1
81-90	8	5	62.50	1	0.625	0
91-100	1	0	0	0	0	0
All Ages	728	19		130	3.073	5

10 yrs (1978-1987)
Expected Deaths = 3.073
Observed Deaths = 5
SMR = observed/expected = $\frac{5}{3.073}$ = 1.63

The standardized mortality ratio (SMR) must exceed 3.09 at the 95% confidence level.

Therefore, the cancer mortality rate is not statistically significantly increased.

Table 1c

Standardized Mortality Ratios of Observed and Expected Numbers of Cancer Deaths in Hartford River and Hartford Control, 1985-1987

Age Group	Total Population	Total # of Cancer Deaths	Age Specific Death Rates per 100	Hartford River Population	Expected Cancer Deaths for Hartford River According to Rates for Total Hartford	Observed Cancer Deaths for Hartford River Population
1-10	80	0	0	11	0	0
11-20	139	0	0	30	0	0
21-30	117	0	0	15	0	0
31-40	112	0	0	16	0	0
41-50	91	1	1.10	25	0.275	1
51-60	78	2	2.56	13	0.333	1
61-70	60	1	1.67	13	0.217	0
71-80	42	3	7.14	6	0.428	1
81-90	8	2	25.00	1	0.250	0
91-100	1	0	0	0	0	0
All Ages	728	9		130	1.503	3

3 yrs (1985-1987)
Expected Deaths = 1.503
Observed Deaths = 3
SMR = observed/expected = $\frac{3}{1.503} = 2.00$

The standardized mortality ratio (SMR) must exceed 4.85 at the 95% confidence level.

Therefore, the cancer mortality rate is not statistically significantly increased.

Table 2

Age Distribution

Hartford Control

Age Group	Total	Percent
1-10	69	11.5
11-20	109	18.2
21-30	102	17.1
31-40	96	16.1
41-50	66	11.0
51-60	65	10.9
61-70	47	7.9
71-80	36	6.0
81-90	7	1.2
91-100	1	0.2

Total reporting age in months: 8

Total of age unkown: 41

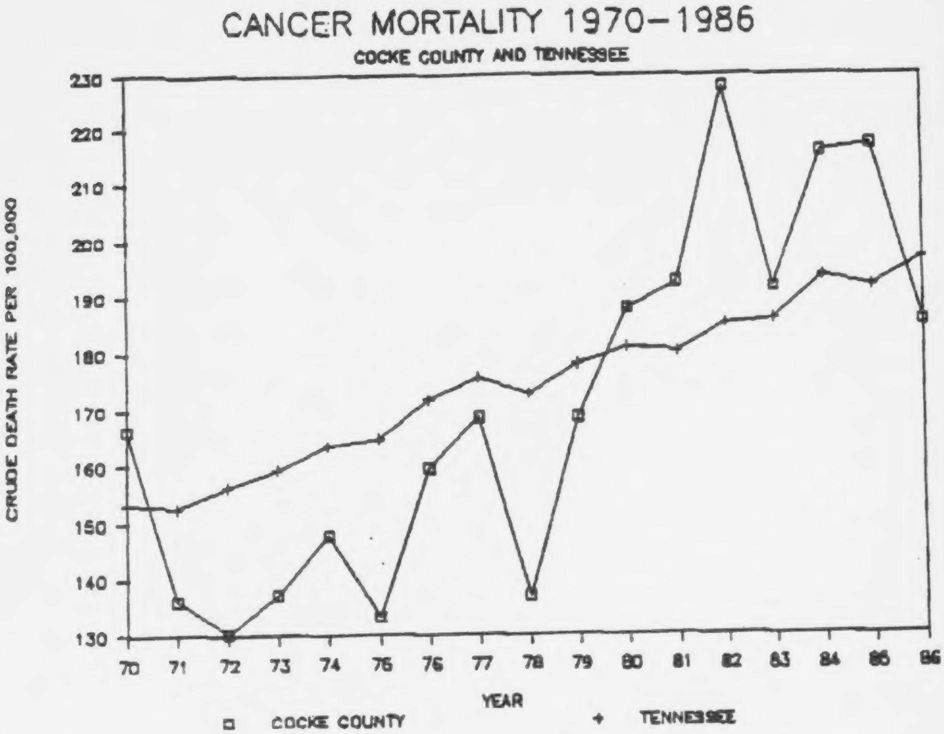
Total Number: 647

Hartford River

Age Group	Total	Percent
1-10	11	8.5
11-20	30	23.1
21-30	15	11.5
31-40	16	12.3
41-50	25	19.2
51-60	13	10.0
61-70	13	10.0
71-80	6	4.6
81-90	1	0.8
91-100	0	0

Total Number: 130

Figure 2



Rate per 100,000 Population of Deaths from Malignant Neoplasms, Cocke County and Tennessee

Crude Death Rates (Not Age-Adjusted)

	Cocke County	Tennessee
Year	Rate	Rate
1970	166.1	153.0
1971	136.1	152.6
1972	130.3	156.2
1973	137.0	159.2
1974	147.6	163.3
1975	133.1	164.6
1976	159.4	171.6
1977	168.5	175.5
1978	136.8	172.6
1979	168.4	177.9
1980	187.6	180.9
1981	192.4	180.2
1982	227.7	185.0
1983	191.6	185.8
1984	215.7	193.5
1985	217.0	191.7
1986	185.4	196.7

Mr. Nowak. Now we'll turn to Mr. Oberstar who is the chairman of our Investigations and Oversight Subcommittee here of the Public Works and Transportation Committee.

Mr. Oberstar?

Mr. Oberstar. Thank you very much, Mr. Chairman.

My compliments on holding this hearing that focuses directly on the issue of dioxin. Our subcommittee held a hearing over a year ago, in fact, almost 2 years ago in which we raised, peripherally, the issues of the dioxin study that was just nearing completion. We've seen some preliminary reports. This would be the first complete congressional committee inquiry into the dioxin issue.

Briefly, Ms. Prothro, could you review for us the key highlights of the findings in the five mill study?

Ms. Prothro. Yes, sir.

We found in the five mill study that there were dioxin furans present in the effluent from four of the five mills tested. Dioxin furans were also present in pulps and the sludges of all five mills. Those are the primary findings. Now we did also——

Mr. Oberstar. That's right. At the time we had the hearing, I asked the question about what point in the pulping process was there suspicion of dioxin being formed since there was no dioxin used as a chemical.

There were extensive tests made of the wood products themselves before they come into the plant for pulping. There was no information that dioxins were present in raw material or that dioxins were used, as such, as a chemical. So there was suspicion that there was a synergism occurring in the chemical process, or when heat was applied, at some point in the pulping process that created the dioxin substance.

Have you developed any further scientific information about that aspect? That's the critical point, finding out where it occurs. Or is it created when the slimicide is applied in the pulp process?

Ms. Prothro. Mr. Oberstar, I'm not a chemist, so I can't answer precisely some of your questions. But I can tell you that the general finding was that the two dioxin isomers that we were most interested in in conducting the test are, in fact, formed during the bleaching process as a result of the chlorine and chlorine derivatives being used in the process. There is a chemical interaction there with the pulp and the chemicals present in that raw material that causes the formation of dioxin.

Mr. Oberstar. Is that now a consensus scientific opinion?

Ms. Prothro. Yes.

Mr. Oberstar. Are there steps that can be taken in the bleaching process to reduce the incidence of creation of dioxins?

Ms. Prothro. We think there is some evidence that, yes, there are some steps that can be taken to reduce the amount of chemicals that are used in the bleaching process, specifically to reduce the amount of chlorine that's being used.

The oxygen delignification process does use generally less chlorine than the kraft pulp processes that are now more generally used. Based on the chemistry, we would expect to see a significant reduction in dioxin formation by the use of oxygen-related bleaching elements.

Mr. **Oberstar**. Now you first had the five mill study. Then, the 105 mill study. What was learned in the 105 mill study that differs from, reinforces, or was similar to the initial five mill study?

Ms. **Prothro**. Well, it's actually 104 mills now.

Mr. **Oberstar**. I understand.

Ms. **Prothro**. The 104 mill study is underway now. The results are just beginning to come in. We really have no findings yet from that. We won't have the complete results in until the spring of next year. We are starting to get data in currently, but we don't have enough to make any findings.

Mr. **Oberstar**. Well, you are receiving information. I know we are getting information through the grapevine, if you will, about this. Little bits and pieces come out.

Does it appear to reinforce the four out of five, 80 percent, of mills producing dioxins? Does it appear to reinforce the earlier study information that the application of heat to chlorines in the bleaching process are creating the dioxins? Or are there significantly different chemical reactions taking place that produce dioxins?

Ms. **Prothro**. I can't really comment on whether the results that are in so far support those general findings or not. But I can tell you that we have been gathering other information. We have certainly been consulting with the international community about the findings that they have made and other information that's available to them. So far, we have found confirmation for the findings at the five mill study. There is currently no reason for us to doubt those findings.

Mr. **Oberstar**. My understanding at the time was that the 104 mill study was to be a monthly report. It was not originally contemplated that there would be an overall comprehensive finding, conclusions, and recommendations as there usually are in such reports. So you must be getting more information in than you are sharing with us here.

Ms. **Prothro**. I believe the first process information came in on June 24, 1988. That's the very first monthly submittal of information that was due to us under the cooperative study. I am not aware that we have been able to complete any analysis on that. The last time I asked, which I think was last week, we still were missing 15 plant process data submittals. So that was the first thing.

We are not expected to get our next submittal until July 24th. That will be concerning the sludge disposal practices. So things will be coming in, but we don't have specific enough information now to give you any findings. I am sorry. I will be glad to share with you, as we get the information, whatever we can.

Mr. **Oberstar**. I think it is important to be staying on top of that, providing and sharing that information and disseminating it, certainly to the interested congressional committees, and to those in the larger community who are very concerned about it.

Let me move to the matter of the fish study. We know the sludge is, of course, disposed. It remains in river bottoms and lake bottoms and moves up through the food chain. There are, of course, unusually high concentrations in fish. What have you learned so far from the larger study, the 104 mill study, or from other aspects of the fish study about concentrations of dioxin in fish. Which types of fish—bottom feeding as compared to surface feeding fish? What are the consequences for people who maintain fish in their diet?

Ms. **Prothro**. Not from the 104 mill study. That study is not looking at fish.

We have a separate effort underway. It is being conducted exclusively by EPA. It is looking at the bioaccumulation of dioxin and, in fact, other pollutants as well in fish. We have stepped up the schedule on that to look at dioxins especially, because of the early results near the pulp and paper mills.

We are indeed finding that the accumulations are higher in the bottom-feeding fish. That is pretty clear. The levels that we are seeing in the edible portion of the fish are generally not exceeding the Food and Drug Administration action level. They recommend that consumption be limited once the levels in the fillet reach 25 parts per trillion and consumption be banned at levels above 50 parts per trillion. We have seen levels along those lines in some whole fish in a few cases.

Page No. 2

DIOXIN LEVELS IN FISH NEAR PULP AND PAPER MILLS

SAMPLING SITE	PAPER MILL	PAPER MILL LOCATION	2,3,7,8-TCDD (ppt)
Penobscot River	James River Corp.	Old Town, ME	Wh Sucker 7.97 (W)
Androscoggin River	Int'l Paper Company	Jay, ME	Sucker 40.95 (W)
Androscoggin River	Boise Cascade Corp.	Rumford, ME	Sucker 16.09 (W)
** Millers River	Erving Paper Mills		Sucker 7.87 (W) SM Bass 0.89 (F)
Androscoggin River	James River Corp.	Berlin, NH	Sucker 7.32 (W)
Susquehanna River	P.H. Glatfelter Co.	Spring Grove, PA	Redhorse Sucker 0.59 (W)
Pamunkey River	Chesapeake Corp.	West Point, VA	Catfish ND (1.1) (W) Redbreast Sunfish ND (1.[illegible]) (F)
James River	Westvaco Corp.	Covington, VA	Shorthead Redhorse 6.76 (W) SM Bass ND (1.[illegible]) (F)
Neuse River	Weyerhaeuser Co.	New Bern, NC	Redhorse Sucker 2.01 (W) LM Bass 0.86 (F)
St. Johns River	Georgia-Pacific Corp.	Palatka, FL	LM Bass ND (1.0) (F)
Savannah River	Federal Paperboard	Augusta, GA	Carp 4.5 (W)
Flint River, Lake Blackshear	Buckeye Cellulose	Oglethorpe, GA	Carp 1.69 (W) LM Bass 0.[illegible] (F)
Holston River	Mead Corp.	Kingsport, TN	Carp ND (1.0) (W) LM Bass ND (1.1) (F)
Conecuh River	Container Corp. of America	Brewton, AL	Quillback Carp 0.55 (W)
Alabama River	Alabama River Pulp Co.	Claiborne, AL	Carp 28.66 (W) LM Bass 15.09 (F)
Ohio River	Willamette Industries Inc.	Hawesville, KY	Carpsucker 4.42 (W) LM Bass 2.14 (F)
Mississippi River	International Paper Co.	Natchez, MS	Carp 6.1 (W) LM Bass 0.82 (F)
- Elevenmile Creek	Champion International	Cantonment, FL	Carp 34.04 (W) LM Bass 4.37 (F)
Pigeon River, NC	Champion International Corp.	Canton, NC	Sucker 75.70 (W)
Pigeon River, TN	Champion Internation Corp.	Canton, NC	Carp 22.77 (W) Rock Bass 1.17 (F)
Peshtigo River Harbor	Badger Paper Mills Inc.	Peshtigo, WI	Carp 8.54 (W) Walleye 1.33 (F)
Wisconsin River	Consolidated Paper Inc.	Wisconsin Rapids, WI	Carp 67.19 (W) Walleye 7.17 (F)
Wisconsin River	Nekoosa Papers Inc.	Port Edwards, WI	Carp 67.19 (W) Walleye 7.17 (F)
Wisconsin River	Nekoosa Papers Inc.	Nekoosa, WI	Carp 67.19 (W) Walleye 7.17 (F)
Escanaba River	Mead Corp.	Escanaba, MI	Carp 3.35 (W) Walleye 1.[illegible] (F)
Menominee River	Champion International Corp.	Quinnesec, MI	Carp 21.01 (W) SM Bass 1.[illegible] (F)
Scioto River	Mead Corp.	Paint Creek, OH	Carp 3.58 (W) Channel Catfish 14.75 (W)
Muskegon Lake (1990)	SD Warren (Scott Paper)	Muskegon, MI	Carp 3.46 (W) Walleye ND (1.[illegible]) (F)
Mississippi River	Potlatch Corp.	McGhee, AR	Carp 4.77 (W) Crappie 1.42 (F)
Red River	Nekoosa Papers Inc.	Ashdown, AR	Sucker 4.1[illegible] (W) Sucker 1.6[illegible] (F)
Sulphur River	International Paper Co.	Texarkana, TX	Carp 1.7 (W) Carp ND (1.1) (F)
Arkansas River	International Paper Co	Pine Bluff, AR	Blue Catfish 33.56 (W)
Mississippi River	Georgia Pacific Corp.	Zachary, LA	Fathead Catfish 1.79 (W) SM Buffalo 1.83 (F)
Mississippi River	James River Corp.	St. Francesville, LA	Fathead Catfish 1.79 (W) SM Buffalo 1.83 (F)
Houston Ship Channel	Champion International Corp.	Houston, TX	Oyster 6.7[illegible] (W) Croaker ND (1.2) (F)
** Ouachita River	Georgia-Pacific Corp.		Carp 3.62 (W) LM Bass 1.[illegible] (F)
Lake Sam Rayburn	Champion International Corp.	Lufkin, TX	Catfish 1.59 (W) Wh Bass 0.94 (F)
Wham Brake (1990)	International Paper Co.	Bastrop, LA	Carp 117.99 (W) Crappie 10.11 (F)
Bayou Anacoco	Boise Cascade Corp.	DeRidder, LA	Channel Catfish 13.69 (W) Bluegill 1.4 (F)
Neches River	Temple Eastex, Inc.	Evadale, TX	SM Buffalo 0.41 (W) LM Bass ND (1.[illegible]) (F)
Sacramento River	Simpson Paper Co.	Anderson, CA	Sucker 6.75 (W) Sacra Sucker 11.74 (F)
San Gabriel River	Simpson Paper Co.	Fairhaven, CA	Redbelly Tilapia 0.54 (W)
San Gabriel River	Louisiana-Pacific Corp.	Samoa, CA	Redbelly Tilapia 0.54 (W)
Commencement Bay	Simpson Paper Co.	Tacoma, WA	St Flounder 1.51 (W)
Grays Harbor	ITT Rayonier Inc.	Hoquiam, WA	St Flounder ND (1.0) (W)
Grays Harbor	Weyerhaeuser Co.	Cosmopolis, WA	St Flounder 0.45 (W)
Columbia River	Boise Cascade Corp.	St. Helens, OR	Squawfish 1.29 (F)
Columbia River	James River Corp.	Clatskanie, OR	Sucker 2.78 (W) Squawfish 1.73 (F)

DIOXIN LEVELS IN FISH NEAR PULP AND PAPER MILLS

SAMPLING SITE	PAPER MILL	PAPER MILL LOCATION	2,3,7,8-TCDD(ppt)
Columbia River	Longview Fiber Co.	Longview, WA	Sucker 5.27 (W) Squawfish 1.75 (F)
Columbia River	Boise Cascade Corp.	Wallula, WA	Sucker 5.12 (W) Channel Catfish 7.92 (F)
Silver Bay	Alaska Pulp Co.	Sitka, AK	Flathead Sole ND (0.9) (W) Stripped Rock Bass ND (1.0) (F)
Snake River	Potlatch Corp.	Lewiston, ID	Sucker 0.46 (W) SM Bass 0.74 (F)
* Rainy River	Boise Cascade	Int'l Falls, MN	Pike 85 (W) Walleye 12 (F)

* Data from study conducted in 1985
** Mill not using chlorine in paper-making process

Ms. PROTHRO. I should point out, though, that we only have the results in and through our quality assurance/quality control process on 36 sites thus far. There are many more to come.

Mr. OBERSTAR. There are 36 sites in the fish study. You mentioned—and it's an important distinction which I was going to come to—between fillet and whole fish.

There were some earlier analyses done that based and reported findings on whole fish studies and, in at least one case, of a very old whole fish that had been feeding on the bottom for a long time. That fish had accumulated a considerable amount of not only dioxin, but other substances in its important organs, liver, and heart. Those were ground up with the rest of the fish which skewed the findings.

At that time there was a decision made among the scientists to avoid that type of scientific analysis so that the results would be unimpeachable and unquestionable.

Are the current scientific protocols separating organ material from fillet material?

Ms. PROTHRO. Yes. We are doing analysis on both the whole fish and the fillet. We are reporting the results separately since the edible portion of the fish is what is relevant for any health assessments. But the levels in the whole fish are of interest to us to because of the possible impact on aquatic life.

Mr. OBERSTAR. Yes. Well, it is very important, but these analyses aren't just done overnight, as you well know.

Ms. PROTHRO. That's right.

Mr. OBERSTAR. It may take as much as 2 to 3 weeks to do the kind of electron microscope analyses and gas chromatograph studies of these very, very small amounts of substances. It is important that the scientific protocol be followed uniformly so that we do have results that can't be attacked and undermined when those results are available so that they will be universally accepted by the scientific community.

How far downstream—do you have any idea of what the plumb may be on dioxins and plant material that take up dioxins in the water plumb downstream from the discharge?

Ms. PROTHRO. I don't think we have enough data on that yet to be able to draw any conclusions. We are selecting fish that are downstream and, we believe, within the plume from the discharges from the mills. But that varies from river to river and from stream to stream. I really am loathe to generalize about that at this point. We don't really know enough about it.

Mr. OBERSTAR. Well, I think that is important for us to continue pursuing that and for the various laboratories to continue developing that information. Again, these matters of health always run up against the critics who say, well, there hasn't been enough scientific study. It's faulty for this, that, or the other reason. I want those studies to be started off on the best possible scientific basis so that the results can be uniform and unimpeachable as we proceed. Those of us who have to make policy decisions, and those of you who have to make regulatory decisions, depend on the scientific data that's developed in the course of those analyses.

What has come from your study on consumer products and dioxin that may have entered the consumer products, such as coffee filters and other similar items.

Ms. **Prothro**. You are somewhat out of my area now. I am in the water regulations area.

Mr. **Oberstar**. That's my area about six times or eight times before noon.

Ms. **Prothro**. Yes. Well, I will simply quote our Assistant Administrator for Pesticides and Toxic Substances who said as we released the original data on consumer products, that based on what we have seen so far, he was not changing his practices with regard to the use of paper products, including coffee filters.

So we are continuing to work with the other Federal agencies that are most interested in that question. The Food and Drug Administration obviously has jurisdiction over paper products that are used in connection with food products. They will also be making decisions based on the results of the 104 mill study. We will be gathering information in that study on pulps and making some predictions and risk assessments about products in connection with that.

Mr. **Oberstar**. Does EPA have a cooperative effort with FDA on this matter?

Ms. **Prothro**. Yes, we do. We have a Federal Task Force that includes FDA and the Consumer Product Safety Commission and—I don't believe they are members—but NIOSH is also working with us on that.

Mr. **Nowak**. If the gentleman would yield? On that point, we will have further witnesses specifically addressing that question at a later time. I know the gentleman wasn't here, but we had tried to invoke the 5-minute rule.

Mr. **Oberstar**. The gentleman will be greatly relieved. That was my last question.

Mr. **Nowak**. We will submit questions to the panel. Other members have advised me that they have markups, Jim. We will go ahead with your final oral question, and then, of course, take all of your written questions.

Mr. **Oberstar**. No, that was my last question, Mr. Chairman.

Mr. **Nowak**. Thank you.

Let me now turn to Mrs. Bentley, who has disappeared. [Laughter.]

Mr. **Stangeland**. Mr. Chairman, I have Congresswoman Bentley's statement, which she would like to have submitted.

Mr. **Nowak**. All right.

[Ms. Bentley's prepared statement follows:]

STATEMENT OF REPRESENTATIVE HELEN DELICH BENTLEY

Chairman Nowak and Ranking Minority Member, Mr. Stangeland, I commend both of you for your leadership in calling together today's subcommittee hearing to review dioxin pollution in the Pigeon River and dioxin pollution from the operation of bleached kraft paper mills.

As a member of the Subcommittee on Water Resources, I have a major interest in working with my colleagues to ensure that our nation's great water supply is preserved and maintained for generations to come. We were successful in crafting reauthorizing legislation, the Clean Water Act, to promote water quality in all of our natural water systems. The U.S. Environmental Protection Agency has the responsibility of implementing the Clean Water Law.

I am pleased to see that among our witnesses are federal officials from the EPA. Their testimony will provide the subcommittee with a more accurate description of the situation on the Pigeon River and of an ongoing study of dioxin contamination related to bleached kraft pulp and paper mills throughout the country.

Control of contaminating pollutants entering natural water supplies is an objective that we must all be committed to achieving. Industry discharges if not properly regulated by federal, state and local interests can contribute to irreversible environmental damage. I am a firm believer in having both government and private industry work together to help ensure that water supplies throughout our nation are made free from pollutants.

Thank you Mr. Chairman and I look forward to working with members of the committee to effectively address some of the environmental issues facing us. Preservation of our natural water resources is sound policy.

Mr. STANGELAND. I also have a statement by Congressman John Paul Hammerschmidt, the ranking Republican of the full committee, who would like to have his statement appear in the record.

Mr. NOWAK. Without objection, it is so ordered.

[Mr. Hammerschmidt's prepared statement follows:]

STATEMENT OF HON. JOHN PAUL HAMMERSCHMIDT

Thank you, Mr. Chairman, for scheduling today's hearing concerning the present water quality of the Pigeon River, with specific reference to dioxin pollution associated with the operation of bleached kraft paper mills.

For eighty years the Champion International Corporation, which has operated a paper mill on the Pigeon River near Canton, North Carolina, has released waste water into the river, altering its color and introducing toxic pollutants which threaten the vitality of the water body. The plant, however, has also provided economic livelihood to the Canton area in the form of jobs and monetary resources. At present the Champion International Corporation employs about 2,100 people in the area and contributes $160 million annually to the local economy.

Our purpose today is to find a means by which the Champion International Corporation may continue in its beneficial role of providing jobs and industry while at the same time minimizing any adverse effects to the Pigeon River environment.

Waste dumping and dioxin contamination are problems that affect not just the Pigeon River but lakes and rivers throughout the country. It is our hope that the testimony we receive today may help us to find solutions and appropriate regulatory responses to a serious national problem.

Mr. Chairman, I want to thank you and the ranking Republican member of the subcommittee, the Honorable Arlan Stangeland of Minnesota, for conducting today's hearing. I also wish to express my deep appreciation to my colleague, the Honorable James Quillen, who has brought this issue to our attention. Finally, I want to thank all of the witnesses who have come to Washington, some at considerable personal expense, to try and find a solution to a very serious problem.

Mr. NOWAK. Let me now turn to Mr. Quillen from Tennessee.

Mr. QUILLEN. Thank you, Mr. Chairman.

I have a statement from our distinguished Senator, Jim Sasser that I would like to make part of the record.

[Mr. Sasser's prepared statement follows:]

STATEMENT OF SENATOR JIM SASSER

Mr. Chairman, I commend you for holding these hearings today. Your examination into the Environmental Protection Agency's handling of the Pigeon River controversy is a matter I have worked on for many months. And one fact that has come through my various efforts on this matter has been the level of mistrust toward the E.P.A. by the residents of Cocke County, Tennessee and other Tennessee communities along the Pigeon River. Indeed, it was this high level of public misgiving about this particular case which prompted my good friend Congressman Jimmy Quillen to move forward with this hearing request.

And quite frankly, Mr. Chairman, the E.P.A.'s credibility has been hurt with Tennesseans by its handling of this case. Tragically, much of the damage done to E.P.A.'s reputation in east Tennessee could have been avoided in my opinion.

I base this opinion on conversations I had during my visits to Newport, Tennessee. The residents of Newport and surrounding communities have been very troubled by different aspects of E.P.A.'s handling of this case and they made that fact well known to me. A few examples illustrate this point.

Cocke County residents have called for testing of well water in Hartford, Tennessee, for some time. This community came to be known as Widowville due to an extraordinarily high incidence of cancer. While E.P.A. officials may have been sympathetic to such concerns, they did not move expeditiously to address this fear. Indeed, it took pressure by myself and Congressman Quillen to get these wells tested. When they were, dangerous levels of radon were found in the water.

A second example centers on the testing of fish in the Pigeon River for dioxin poisoning. The manner in which initial tests were conducted left much to be desired. Indeed, testing was conducted immediately after the State of North Carolina had released fish into the Pigeon River. Whether coincidental or not, this certainly did little to bolster the faith of east Tennesseans in the E.P.A.'s handling of this serious question.

Again, after Congressman Quillen and I met with residents of Cocke County, we went to the E.P.A. and urged them to do more dioxin testing in the Pigeon River. That testing has been done and again illustrated problem areas in the Pigeon.

Now, these examples may strike an outsider as ordinary oversights in the operation of a Government bureaucracy. But to the residents of east Tennessee, they left of a legacy of mistrust.

As disturbing as these various incidents have been, I am more troubled by E.P.A.'s continued failure to address the dioxin issue head-on. E.P.A. has been studying the question of dioxin in the Pigeon River for some time. Yet, the agency still has not come forward with a policy for handling this extremely dangerous pollutant. And let's be clear about it—there are unacceptable levels of dioxins in the Pigeon River.

Mr. Chairman, the lack of a clear-cut policy on this issue will only perpetuate E.P.A.'s problems in east Tennessee. Until the residents of Cocke County are convinced that the E.P.A. is serious about combating this problem, they will have little faith in this Government agency.

That is not too much to ask of the E.P.A. Indeed, if the E.P.A. wants to send a signal to the people of Cocke County that they are doing all they can on this case, I can think of no better area. The dioxin problem has been ripe for action for some time. When it is addressed, I believe you will see the E.P.A. taking the first step toward repairing its reputation in east Tennessee.

Mr. QUILLEN. Ms. Prothro, can you tell me when the EPA first became aware that dioxin could well be a byproduct of the pulp and paper industry operation?

Ms. PROTHRO. I think the earliest that we really had this indication would be the late-1985 timeframe when the National Dioxin Study results began to show that the levels of dioxin below pulp and paper mills were higher or occurring more frequently than in other streams. We didn't really know what it was coming from at that point though. Those results were not actually circulated to EPA staff members until about 6 months later. At that point we didn't know whether maybe this problem was coming from pesticides in the areas or what. It definitely required further investigation.

It wasn't really until we had the results of the five mill study toward the end of 1987 that we really had made a finding that we felt confident about and that this was, in fact, associated with the pulp and paper bleaching process.

Mr. QUILLEN. With all the emphasis in cleaning up the Pigeon River, and knowing that dioxin was created by the operation of these mills, why did you wait until the winter of 1987 to do testing in the Pigeon River?

Mr. BARRETT. Mr. Quillen, as Ms. Prothro just indicated, we did not have any kind of conclusive evidence that dioxin was being created by pulp and paper mills until virtually about the time that we took some samples.

The results of the five mill study became available in mid-1987 to late-1987. There had been some samples taken in the State of Alabama. The results came out at about the same time. We sampled the Pigeon River for the first time in November, I believe it was, of 1987. Then, as you know, we have done extensive testing since that time. We just were not aware of it prior to that time.

Mr. QUILLEN. Well, Mr. Barrett, you have not been in Atlanta too long. How long?

Mr. BARRETT. Since April 1985, sir.

Mr. QUILLEN. Prior to your arrival there, I had the gentleman in charge of the Atlanta office in Newport, TN. We stood on the banks of the Pigeon River. I pleaded with him that something must be done.

Now there is no question in my mind but that EPA has been dragging its feet. A situation existing there for 80 years—EPA was created in 1970 by Executive order of President Nixon—only now, since we are zeroing in on the hearing, are we getting results.

I know when the hearings were held, they were held out of Newport, in Knoxville, TN. They were held out of Canton, NC, in Asheville, NC, when the problem was within these areas. I, for the life of me, don't understand why the rumors are that there was danger if you held them in Newport or if you held them in Canton, NC. What was the reason?

Mr. BARRETT. There were two reasons. One of them is that there had been threats of violence at the earlier hearings. We had been requested by people from Cocke County to postpone the hearings that were scheduled in May 1987.

But the reasons that the hearings were subsequently relocated to the larger cities was primarily because there were not facilities available in Canton and Newport that would accommodate the crowds that we expected, and subsequently had, at the hearings that were then held in January of this year. As I have mentioned, sir, we had 11,000 people at the two hearings; 7,000 in Asheville, and 4,000 in Knoxville.

Mr. QUILLEN. The threats, where were they coming from, Mr. Barrett?

Mr. BARRETT. Where were the threats coming from?

Mr. QUILLEN. Yes.

Mr. BARRETT. Certain individuals, particularly associated with environmental groups, were receiving death threats by telephone at their homes. I don't know what other form it took, but the word would get back to me in Atlanta that people's lives were being threatened. I was told that if the hearings were held in May, as they had been originally scheduled, there would be blood in the streets.

Mr. QUILLEN. Well, I represent that area, Mr. Barrett. My request was to have the hearing in Newport. The hearing was scheduled in Knoxville without any consideration of my request. Newport is a peaceful town. I won't ask you openly to mention the names of the people who called you. But for the record, I'd appreciate your submitting those names.

Mr. **Barrett**. I'll be pleased to do that.

Mr. **Quillen**. Mr. Chairman, I won't delay the hearing with other questions. But I do want to thank the EPA for being here today and being so forthright with their answers. I'm still not satisfied that things have been going in the manner to get the job done.

Thank you, Mr. Chairman.

Mr. **Nowak**. Thank you, Mr. Quillen.

Let us go to a very brief second round and call first on our minority leader, Mr. Stangeland.

Mr. **Stangeland**. Yes.

Mr. Barrett, it's my understanding that dioxin was not originally an issue in the Canton permit. The major controversy was the coloration/discoloration of the river.

Mr. **Barrett**. That's correct, sir.

Mr. **Stangeland**. Can you give EPA's assessment of the health threat posed by the color at the plant? What other water quality criteria were addressed in the permit action?

Mr. **Barrett**. As far as I know, color has no human health implications, per se. It does have adverse effects on the biological quality in the river in that it inhibits the light penetration that the organisms within the river need for a healthy situation.

In terms of the other permit parameters, let me turn to Mr. Marlar here. He can describe some of the other parameters that are covered in this permit.

Mr. **Marlar**. There's quite a list of them. I believe we earlier had submitted in writing a description of a host of them.

The limitations within the draft permit address discharge flow, biochemical oxygen demand, ammonia, total suspended solids, dissolved oxygen, fecal coliform, temperature, chemical oxygen demand as a monitoring requirement, total residue as a monitoring requirement, settleable matter monitoring, chlorophenol and pentachlorophenol sampling, color, PH——

Mr. **Stangeland**. In the essence of time, you might want to submit that comprehensive list for the record so we don't prolong the hearing.

Mr. **Marlar**. Yes, we will.

[The information follows:]

Permit No. NC0000272

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended (33 U.S.C. 1251 et seq. the "Act"),

Champion International Corporation
Champion Papers Division

is authorized to discharge from a facility located at

Main Street
Canton, North Carolina

to receiving waters named

the Pigeon River

in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein. The permit consists of this cover sheet, Part I 4 page(s), Part II 15 page(s) and Part III 4 page(s).

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

REVISED DRAFT PERMIT - CONTINGENT ON WATER QUALITY STANDARDS ACTIONS

Date Signed

Bruce R. Barrett, Director
Water Management Division

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date of the permit and lasting through the term of this permit, the permittee is authorized to discharge from outfall serial number 001 (treated process wastewater and Town of Canton domestic wastewater):

Such discharges shall be limited and monitored by the permittee as specified below:

PARAMETER	DISCHARGE LIMITATIONS kg/day(lbs/day)		DISCHARGE LIMITATIONS Other Units (Specify)		MONITORING REQUIREMENTS		
	Daily Avg	Daily Max	Daily Avg	Daily Max	Measurement Frequency	Sample Type	Sample Location
Flow	-	-	35.0 MGD	-	Continuous	Recorder	E,U
Biochemical Oxygen Demand (5 day), 20°C	2942(6472)	5663(12458)	-	-	Daily	Composite	I,E,U,D
Ammonia	-	-	-	-	Daily	Composite	E
Total Suspended Solids	19097(42014)	35540(78187)	-	-	Daily	Composite	I,E
Dissolved Oxygen	See Item 3 on Page I-2				Daily	Grab	E,U,D
Fecal Coliform	-	-	1000/100ml	2000/100ml	Weekly	Grab	E,U,D
Temperature	See Item 2 on Page I-2				Daily	Grab	E,U,D
Chemical Oxygen Demand	-	-	-	-	Weekly	Composite	E,U,D
Total Residue	-	-	-	-	Weekly	Composite	I,E
Settleable Matter	-	-	-	-	Daily	Grab	E
Trichlorophenol	-	-	-	-	Quarterly	Composite	E
Pentachlorophenol	-	-	-	-	Quarterly	Composite	E
Color	See Item 5 on Page I-2				See Item 5 on Page I-2		
pH	See Item 4 on Page I-2				Daily	Grab	I,E,U,D
Effluent Toxicity	See Item 6 on Page I-3						
Chloroform	-	-	0.214 mg/l*	-	Weekly	Composite	E
Zinc	-	-	-	-	Daily	Composite	E
Total Dissolved Solids	-	-	-	-	Daily	Composite	E
2,3,7,8-Tetrachlorodibenzo-p-dioxin	-	-	-	-	See Item 6 on Page III-4		

I - Influent, E - Effluent, U - Upstream, D - Downstream

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Effluent samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): nearest accessible point after final treatment but prior to actual discharge or mixing with the receiving waters.

* Subject to revision based on establishment of a site specific bioconcentration factor for chloroform.

2. The monthly average instream temperature measured at a point 0.4 miles downstream of the discharge location shall not exceed 32.0°C during the months of July, August, and September and shall not exceed 29.0°C during the months of October through June. The monthly average instream temperature measured at this location shall not exceed the monthly average instream temperature of the upstream monitoring location by more than 13.9°C.

3. The concentration of dissolved oxygen in the effluent shall not be less than 6.0 mg/l.

4. The effluent pH shall not be less than 6.0 standard units nor greater than 9.0 standard units.

5. (a) Monitoring requirements for apparent and true color and limitations for true color are as follows:

   (1) Influent and effluent shall be monitored for apparent and true color once per day by a composite sample.

   (2) The Pigeon River shall be monitored for apparent and true color twice per week by grab sample at the North Carolina/Tennessee state line. The sample shall be collected at the bridge approximately 0.5 miles downstream of the state line and shall be representative of the Pigeon River.

   (3) Champion shall take such actions as necessary to prevent their contribution of true color from causing the true color at the North Carolina/Tennessee state line from exceeding 85 true color units at all flows equal to or exceeding 126 cfs at the Hepco Gaging Station.

   Compliance with this requirement shall be measured through a calculation of instream true color levels at the North Carolina/Tennessee state line by the following equation:

$$SL_C = \frac{(WTP_C \text{ x } WTP_f) + ((HE_f - WTP_f) \text{ x } D_C)}{HE_f \text{ x } 10^{(-0.224 \text{ x } LOG\ (HE_f) + 0.781)}}$$

Where: WTP_C = Waste Treatment Plant discharge color (C.U.)
WTP_f = Waste Treatment Plant discharge flow (mgd)
HE_f = HEPCO, North Carolina flow (mgd) - daily flow values lower than 81.4 mgd shall be entered as 81.4 mgd
SL_C = Instream true color at North Carolina - Tennessee border (State line)
D_C = Color Concentration of all Dilution Streams (13 C.U.)

The SL_C shall be calculated on a daily basis. The average of any calendar week (seven days) of calculated SL_C values shall not exceed 85 true color units. Any exceedance of 85 true color units for this average value shall be considered as a violation of this permit except as provided in Item 5(a)(3)(c) of this part.

(b) The average daily discharge of true color for each calendar month shall not exceed 258,945 pounds per day. The average annual effluent true color loading shall not exceed 172,368 pounds per day. For the purposes of this permit only, "pounds of true color" is calculated by the following equation:

Effluent Flow x Effluent True Color Level x 8.34
(mgd) (Platinum Cobalt Units)

(c) Champion is not required to reduce the daily effluent true color loading to less than 124,923 pounds per day.

(d) The method of analyses used to measure true color shall be the procedure referenced in FR 39 430.11(b) (May 29, 1974).

6. The chronic no observable effect level (NOEL) of the discharge shall not be less than 100%. The permit will be adjusted to reflect a new percent value for the NOEL based on the results of the study of operation of the upstream reservoir (See Part III(C)(5)). The new percent value for the NOEL will be based on the minimum instantaneous flow for the Pigeon River considering the effects of flow releases from Lake Logan and the effluent flow of the reconfigured mill. After the minimum instantaneous flow has been established, maintenance of the upstream flow will be included as a requirement of this permit. The NOEL shall be determined utilizing an acceptable biomonitoring procedure developed under Part III C, Item 1, on Page III-2 of the permit.

If any one test indicates that the NOEL is less than 100% for a specific sampling period, an additional toxicity test using the specified methodology and the same test species shall be conducted within 2 weeks. If this additional test indicates that the NOEL is less than 100%, this will constitute a violation of the permit. In the event a violation of the toxicity limit results in an enforcement action, any different or more stringent monitoring requirements imposed in that enforcement action shall apply in lieu of this permit condition for whatever period of time is specified by EPA in the enforcement action.

7. Where composite samples are specified in the monitoring requirements of this permit, a 24 hour composite sample is required.

B. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

    a. The effluent limitations for flow, effluent toxicity, true color and chloroform shall become effective in accordance with the following schedule:

	Date	Required Action
(1)	Effective Date + 6 months	Status Report
(2)	Effective Date + 1 year	Status Report
(3)	Effective Date + 18 months	Status Report
(4)	Effective Date + 2 years	Status Report
(5)	Effective Date + 30 months	Status Report
(6)	Effective Date + 3 years	Achieve compliance with effluent limits for flow, effluent toxicity, chloroform and color

    b. The effluent limitations for all other parameters shall become effective upon the effective date of this permit.

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

PART III

OTHER REQUIREMENTS

A. Reporting of Monitoring Results

Monitoring results obtained each calendar month must be summarized for that month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed calendar month. (For example, data for January shall be submitted by February 28.) Duplicate signed copies of these, and all other reports required by Section D of Part II, Reporting Requirements, shall be submitted to the Permit Issuing Authority at the following address:

Environmental Protection Agency
Region IV
Facilities Performance Branch
Water Management Division
345 Courtland Street, N.E.
Atlanta, Georgia 30365

B. Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C), and (D), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
2. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

The permit may be modified to comply with the results of future water quality studies of dissolved oxygen levels in the Pigeon River.

The conditions and limitations of this permit are predicated upon Champion's proposed facility process change including oxygen delignification.

If, based upon an appropriate amount of instream true color data, it is demonstrated that the equation in Part I.A.5(a)(3) does not adequately predict true color levels at the North Carolina/Tennessee state line, the equation shall be adjusted appropriately and this permit modified accordingly.

C. Special Conditions

1. The permittee is required to develop a Plan of Study and conduct effluent toxicity testing. All test organisms, procedures, and quality assurance criteria used shall be in accordance with "Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," EPA-600/4-85-014, or other methods approved by EPA. Chronic toxicity testing will be required for two test organisms (one fish and one invertebrate); testing will be used to determine the effects of the effluent on survival, reproduction, and/or growth of the test organisms. The requirements for two test organisms may be waived upon adequate determination of the more sensitive test organism. This determination shall include an analysis of the testing results from at least four toxicity tests required by this permit. For the period of one year following initiation of the tests, toxicity testing will be conducted once per month during July, August and September, and once every quarter for the remainder of the year. After the first year of testing, toxicity testing will be conducted once every six months for the duration of the permit. One of these toxicity tests will be conducted during the months of July, August, or September.

   The permittee shall submit the Plan of Study to EPA within sixty (60) days of the effective date of this permit. The EPA will review the Plan of Study within thirty (30) days of its receipt and, upon approval, the Plan of Study will become an enforceable part of this permit. Toxicity testing shall commence no later than one-hundred and twenty (120) days after the effective date of this permit.

2. The permittee is required to operate oxygen injection facilities at the outfall structure, at 0.9 miles downstream of the discharge, and at 2.1 miles downstream of the discharge. These facilities shall be operated in a manner which will maintain the water quality standard for dissolved oxygen in the Pigeon River downstream of the discharge.

   The permittee shall monitor the Pigeon River at six locations downstream of the discharge. The locations of instream monitoring stations (show as miles upstream of the confluence with the French Broad River) are listed below:

   River Mile

   62.9
   57.7
   55.5
   53.5
   48.2
   42.6

Monitoring requirements for this sampling program are specified below:

a) Sampling for dissolved oxygen and temperature shall be conducted once per week for all stations. A minimum of two samples shall be collected for dissolved oxygen and temperature at each station for each day samples are collected. The sample type for instream dissolved oxygen and temperature monitoring is "grab."

b) Monitoring for five day biochemical oxygen demand (BOD_5) shall be conducted once per week for all stations. The sample type for instream BOD_5 samples is "grab."

c) Average daily flows shall be measured at river mile 55.5.

Limitations to measure compliance with the requirements of this special condition are as follows:

The average daily dissolved oxygen concentration measured at river mile 62.9, 57.7, and 55.5 shall not be less than 5.0 mg/l and the instantaneous minimum dissolved oxygen concentration shall not be less than 4.0 mg/l.

3. Within 60 days after the effective date of this permit, the permittee shall submit a study plan acceptable to EPA to further evaluate the levels of chloroform in the effluent and the fate of chloroform in the Pigeon River downstream of the discharge. The EPA will review the study plan within thirty days of its receipt and, upon approval, the study plan will become an enforceable part of this permit.

4. Within 60 days after the Canton Pulp and Paper Mill has made the proposed process changes including oxygen delignification, the permittee must sample the effluent (which is representative of the reconfigured mill) for the priority pollutants listed in Part V of Application Form 2C - Wastewater Discharge Information. The results of the analysis of this sample shall be provided to EPA within 90 days after the effluent samples for the reconfigured mill are collected.

5. Within 90 days of the effective date of this permit, the discharger will submit a proposal to operate the upstream reservoir in order to provide the maximum possible dilution during naturally low streamflow periods. After review and comment by EPA and acceptance by EPA and the discharger, the terms of the reservoir operation scheme may become a part of this permit after permit modification.

6. The permittee is required to monitor once per quarter for 2,3,7,8 tetrachlorodibenzo-p-dioxin (dioxin) at the following locations:

   a. Influent to wastewater treatment facility
   b. Effluent
   c. Sludge
   d. Landfill leachate

   The method of analysis for dioxin shall be the appropriate method of analysis specified in Analytical Protocol for the Determination of 2,3,7,8-Tetrachlorodibenzo-p-dioxin and 2,3,7,8 Tetrachlorodibenzofuran in Paper Mill Process Samples (woodchips and paper pulp) and Paper Mill Effluents (sludge, ash, mud, treated and untreated wastewater); Dioxin 1 Analyses, Wright State University, Dayton, Ohio, June 22, 1987 (revised). For each sampling period, the limit of detection shall be reported for each sample analyzed for dioxin.

   In addition, the permittee shall develop a Plan of Study to assess the levels of dioxin in ambient fish tissues downstream of the discharge. The permittee shall submit the Plan of Study to EPA within sixty (60) days of the effective date of this permit. The EPA will review the Plan of Study within thirty (30) days of its receipt and, upon approval, the Plan of Study will become an enforceable part of this permit. Monitoring shall commence no later than one-hundred and twenty (120) days after the effective date of this permit.

Mr. **Stangeland**. As I understand it, the permit is controversial not only because of dioxin and color, but because it involves pollution originating in one State that affects or may affect water quality of a neighboring State.

Can you tell us how the provisions of section 401 of the Clean Water Act are set up to address these interstate problems? How well have those provisions worked in this case?

Mr. **Marlar**. Congressman, in this particular case, section 401—which is the section which addresses State certification of permit actions—I don't believe enters. The State of Tennessee, I don't believe can legally make a section 401 certification of a Federal permit action not taking place in Tennessee.

Mr. **Stangeland**. But doesn't North Carolina have to certify that their standards are compatible with Tennessee standards? Isn't EPA the arbitrator of that agreement between the two States?

Mr. **Marlar**. Not in a legal sense. If North Carolina were issuing the permit, we would oversee their action to see that they were, in fact, proposing a permit consistent with both North Carolina and Tennessee State standards. The determination made several years ago by EPA was that their action was not consistent with either State standards, and EPA took the permit.

[The information follows:]

QUESTION FROM CONGRESSMAN STANGELAND

Question: Can you tell us how the provisions of Section 401 of the Clean Water Act are set up to address these interstate problems? How well have those provisions worked in this case?

Response. In this instance, the authorites contained in Section 402(d) were exercised by EPA to object to and eventually veto the 1985 North Carolina issued permit. Section 402(b)(5) was also used which ensures that the affected State's (Tennesee) recommendations regarding the permit were adequately considered.

Section 401(a)(1) applies to federal licenses or permits. After EPA assumed exclusive authority to issue the Champion permit, any permit proposed to be issued must be sent to the state in which the discharge originates for certification that it will comply with the provisions of Sections 301, 302, 303, 306, and 307 of the Act. Section 208(e) must also be met.

Section 401(a)(2) is, as you noted, available to ensure that an affected state's water quality standards are adequately considered and maintained. EPA has the authority under this Section to ensure that Tennessee standards are maintained and protected by a federally issued permit in North Carolina.

Mr. **Stangeland**. But that is under the 401 provision, is it not?

Mr. **Marlar**. Yes, sir. It's my mistake.

Mr. **Stangeland**. Ms. Prothro, could you tell the committee the status of EPA's proposed regulation of sludge and the extent to which dioxin will be addressed in those regulations?

Ms. **Prothro**. The sludge regulations that we're working on in the Office of Water right now address municipal sewage sludges. We are indeed sampling for dioxins. We will have data on dioxins. We do not yet have any analytical data in on the dioxin sludges, so I can't really predict how we'll come out in the regulatory process on that.

Right now we are developing a proposal which we hope to publish in the Federal Register for comment by the spring of next year. That proposal will likely not include anything on dioxin because we will not have the full analytical data available to us at that time. We expect to reopen the proposal with an additional notice later to address dioxin before we go final with the regulation. Although we will reopen the proposal with a notice of data availability that will include dioxin, it is unlikely that dioxin will be regulated in the first phase of sludge regulations now planned for promulgations in October 1991.

Now there is a provision in the statutory authorization for the sludge regulations that requires EPA to extend sludge regulations to industrial sludges when they are mixed with domestic sewage. So there is a chance that at some point down the road those regulations could apply to industrial facilities as well as to municipal facilities. But that will not be included in the first phase of the sludge regulations that will be proposed next year.

Mr. STANGELAND. How long have you been working on the sludge regulations?

Ms. PROTHRO. Well, it certainly predates my tenure in the Office of Water Regulations and Standards.

Mr. STANGELAND. And how long is that?

Ms. PROTHRO. I really can't recall when it began. It was in the late 1970's, I believe, that the sludge regulation work began.

Mr. STANGELAND. That's an inordinate amount of time.

Ms. PROTHRO. We do have some sludge regulations in effect now, as I'm sure you know. But they are quite limited.

Mr. STANGELAND. One last question.

Can you tell us, in your estimation, how long it will take to restore the river to a fishable, swimable condition? What remedial action will be required? Or will the river eventually clean itself as a result of the reduction in pollutants required by the new permit?

Mr. BARRETT. That's a tough one to answer, Mr. Stangeland.

We would anticipate that once the new permit is issued and the mill is reconfigured—which will take 3 years to do—there should be some immediate improvement in terms of the pollution of the river.

As I've described, there are two reservoirs on the Pigeon River below the mill. They do contain sediments from the mill from the last 80 years. How soon the reservoirs will clear themselves is really not clear to me. As to rehabilitation work on the reservoirs, that's certainly a possibility.

I know that attempts to remove in place contaminated sediments from other water bodies has proven to be a very, very difficult thing in the past. Just how we would go about that in the case of the Pigeon River is really not clear. In some instances it has been found better to leave the sediments in place and then let clean sediment, in the future, basically cover it over. That's what has been done, for example, in the Hudson River in New York where there was PCB contamination. They found it difficult to try to remove it. But it's a very difficult prospect.

Mr. STANGELAND. Thank you.

Thank you, Mr. Chairman. I have no further questions.

Mr. NOWAK. Thank you.

I would hope that you would have staff stay for the other witnesses that have traveled to this hearing from all around the country.

I might just mention that we have a report that Stockholm—June 20, Sweden—said that it had ordered an inquiry into the amount of potentially dangerous chemicals used in domestic paper products as a step toward reducing them and then banning them completely. Perhaps after I read this brief release you could give me your comments.

> Environmental Minister, Birgitta Dahl, said she wanted household products such as toilet rolls, kitchen paper, and baby napkins to be completely free of toxic bleaching agents such as chlorine and dioxin within a year. Scientists say bleaching products pose a threat to nature once they are used and then discarded by the consumer, while factories producing the substances also pollute the environment.
>
> If we get chlorine bleached paper out of the consumer products, we will also lose amounts of chlorine from industrial processors, Dahl told an environmental conference in Sweden. Consumers will not be required to live with an environmental threat on their breakfast tables, their bathrooms, and a large part of their everyday life, she added.
>
> Dahl said that she had asked the National Chemical Inspector to list the chlorine and dioxin content of household products and to report to her by March next year. She said she had also written to the paper producers, asking them to scale down the use of bleached products.
>
> A ministry spokesman said the new antichlorine campaign puts Sweden at the forefront of the world's environmental campaigns in ridding industry of unnecessary chemicals with potential health risks.

I'm wondering how you would view that step which certainly seems to be ahead of where we are in this whole process?

Ms. PROTHRO. Well, it sounds as if the Swedish Government is still in the process of gathering data, as are we. I don't believe that we have enough data, as yet, to indicate to us that paper products, in general, pose a health risk significant enough to attempt to ban the use of these products or the manufacturing process.

This, however, will be something we'll be addressing as we get the results of the cooperative study. We'll be receiving our results by the spring of 1989, as well as the Swedish Government, apparently. So I'd certainly be interested in looking into that more. We'll have our sister agencies on the Federal Paper Task Force also look into it.

Mr. NOWAK. With the evidence that you have in hand of the five mill study, has EPA advised all of those industrial producers, or requested of them, any scaling down of the use of bleached products in the present process that they're using?

Ms. PROTHRO. We have not taken any specific regulatory action. I think it has been very clear from the draft permitting strategies that we've been circulating to our regional offices—and that some of our State permit writers have been looking at—that that's the direction we're moving in. I have no doubt myself that the paper industry has gotten the message that we are looking at a reduction in the use of these chemicals. Ultimately, we want to see especially bioaccumulative pollutants minimized in all effluents, as well as in the product.

Mr. NOWAK. Well, thank you for your appearance this morning. Again, we will keep the record open because I think there's a lot of pieces that will come as we go through the rest of the witnesses today. Perhaps we will be sending to you for an answer, and then resubmitting to those questioneers who come after you. We'd appreciate someone in attendance from EPA to keep this in review.

Ms. PROTHRO. Yes, we will have some staff here.

Thank you.

Mr. **Nowak**. Thank you for coming.

[The prepared statements of Mr. Barrett and Ms. Prothro follow:]

STATEMENT OF
BRUCE R. BARRETT
DIRECTOR, WATER MANAGEMENT DIVISION
REGION IV
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES
OF THE
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U. S. HOUSE OF REPRESENTATIVES
WASHINGTON, D. C.

July 13, 1988

Mr. Chairman and members of the Subcommittee. My name is Bruce R. Barrett and I am Director of the Water Management Division in Region IV of the U. S. Environmental Protection Agency located in Atlanta, Georgia. I am accompanied today by John T. Marlar, Chief of the Facilities Performance Branch in Region IV.

I am pleased to be here today to describe to the Subcommittee the substantial progress that is being made to clean up the Pigeon River in North Carolina and Tennessee. While cleanup of pollution is rarely as fast as we'd like to see it, a lot of progress has been made in the past three years in terms of agreement on what must be done, and the next three years will, we hope and believe, see a great improvement in the physical, chemical, biological, and aesthetic quality of the river.

Before I get into the details of this progress, it is important to review the institutional framework of the Clean Water Act, the principal federal statute being used to initiate the cleanup. The Clean Water Act establishes the concept of state primacy in implementing the water pollution control program through the National Pollutant Discharge Elimination System (NPDES) permit. EPA's role is one of oversight, and financial and technical assistance. Both North Carolina and Tennessee, having met the statutory and regulatory criteria for primacy, have the authority and obligation to issue NPDES permits, to take enforcement actions and to establish standards for water quality and to measure and monitor compliance with the established standards.

In our statutory role of oversight, EPA reviews and approves water quality standards established by the states. We also review state-issued permits and compliance actions. EPA has statutory authority to object to state-issued permits when they are legally deficient, and to take direct enforcement action where a state's action is not timely or appropriate.

The Champion Permit

The Champion International Corporation owns and operates a bleached kraft pulp and paper mill in Canton, North Carolina. The mill has 2,200 employees, produces envelope stock and paperboard used in milk and juice cartons, and averages production of 1,650 tons per day. The mill was originally constructed in 1908, and discharges treated wastewater to the Pigeon River. The Pigeon is a high quality mountain stream above the discharge. From the point of discharge, the Pigeon flows generally in a northwest direction for about 35 miles where it enters Cocke

County, Tennessee. Some 15 miles later it flows into TVA's Douglas Reservoir. There is a small hydropower reservoir operated by Carolina Power and Light on the Pigeon just before it flows into Tennessee.

On May 14, 1985, the State of North Carolina issued a National Pollutant Discharge Elimination System (NPDES) permit to the Champion mill over the written objections of EPA. EPA's objections related to color removal, to North Carolina's inadequate response to Tennessee's objections, and to procedural defects in the permit issuance process. Because North Carolina failed to resolve EPA's objections, the May 14 permit was invalid, and exclusive authority to issue the Champion permit passed to EPA in November 1985.

The propriety of EPA's objection and EPA's authority to issue the permit were challenged by Champion and by North Carolina, but EPA's position was upheld in Federal District Court in December 1986. This decision was appealed to the 4th Circuit Court of Appeals. In late June of this year, the 4th Circuit affirmed that EPA was within its rights to assume permitting authority, and ruled further that the courts have no jurisdiction to review EPA's objections to the North Carolina permit until the Agency itself either grants or denies a final permit. Following the district court's decision, EPA continued with the development of a draft federal permit.

A permit must be consistent with state water quality standards. Tennessee previously had interpreted its narrative water quality standard for color to be 50 apparent color units, but North Carolina had provided no such interpretation. Therefore EPA, based upon commonly accepted levels of color for aesthetic purposes, established 50 apparent color units as the standard applicable to the North Carolina portion of the Pigeon River. The district court in the previously mentioned court action, held that the interpretation of 50 apparent color units under North Carolina's narrative color standard was not arbitrary. Because of the requirement that permits be consistent with water quality standards, EPA's draft permit required achievement of 50 color units one quarter mile below the discharge. EPA was aware of no technology to achieve this level of color reduction, but under law and regulation we had no choice but to proceed. The draft permit was made available for public review and comment on January 9, 1987.

Federal regulations allow EPA to approve permit limits that do not result in the achievement of water quality standards where state law includes the authority to grant a variance from state standards in cases where widespread economic and social impact would result from meeting the standard. Champion may be able to meet this test, but at the time of the above referenced draft permit, it had not applied for nor received a variance from either North Carolina or Tennessee.

Champion stated publicly that it could not comply with the terms of the draft permit, and that if it was issued, it would be forced to close the Canton mill. Resulting unemployment would affect about 2,200 mill employees, and an estimated additional 8,000 service and support jobs.

In the meantime, the issue of dioxin surfaced. In April 1986, the draft report of EPA's National Dioxin Study, disclosed that certain pulp and paper mills are a "previously unsuspected possible source" of dioxin based on the results of fish samples collected near some pulp and paper mills. Further evidence that bleach kraft pulp mills might be discharging dioxin became available in 1987 from results of fish sampling in Alabama and from follow-up sampling of five additional mills prompted by the National Dioxin Study. The first dioxin sampling of the Pigeon River was conducted in November 1987, and more extensive sampling has occurred in the first few months of 1988.

The consumption of fish tainted with dioxin is the most likely human health exposure route resulting from such effluents. In the on-going EPA National Bioaccumulation Study, dioxin has been found in the samples of fish collected downstream of pulp and paper mills using chlorine or chlorine derivatives. However, those levels vary considerably.

EPA conducted extensive testing for dioxin in the Pigeon River in April of this year. The results indicated extensive bioaccumulation of dioxin in fish from Canton, North Carolina, to the Tennessee state line. As a result of these findings, the State Health Director of North Carolina has recommended that fish from this portion of the river system not be consumed. Samples from the Tennessee portion of the system in Douglas Reservoir showed dioxin contamination at much lower concentrations, and Tennessee health officials have determined that consumption of fish from the lake does not present a public health threat.

In January 1988, EPA was informed by residents of Hartford, Tennessee of suspected contamination of their drinking water wells by Pigeon River water. EPA has conducted extensive testing to determine the quality of ground water in the Hartford area, and I am pleased to say that all chemical data presently available, as well as geological factors, indicate no contamination of ground water by the river.

Public hearings were initially scheduled on the draft permit in May 1987, in Canton, North Carolina and Newport, Tennessee. Those hearings were postponed for several reasons. EPA required more time to review recently submitted technical information regarding Champion's ability to remove color. In addition, there had been threats of violence, and it became clear that the number of hearing attendees would exceed the capacity of the facilities available in Canton and Newport.

Based on EPA's review of all information received at that time, a revised draft permit was issued on November 30, 1987, and the hearings were held in Asheville, North Carolina and Knoxville, Tennessee in January 1988. An estimated 11,000 people attended the two hearings. We received approximately 160,000 letters, petitions with 15,000 signatures, and we heard testimony from 202 individuals and groups. The message from the public was loud and clear. EPA, and the States, must find a way to clean up the river, and to keep the mill open to avoid economic dislocation. Our subsequent actions were driven by this mandate of the public.

EPA discussed possible solutions to the problem with representatives from North Carolina and Tennessee in February of this year. The States agreed to consider variances to their water quality standards for color. EPA agreed that, if variances were granted, it would issue a draft permit requiring a "cap" of 85 true color units at the State line. I must emphasize that both States' variance processes and the permit issuance process are subject to public participation requirements.

The draft permit discussed would require extensive monitoring for dioxin, and would place tight limits on effluent toxicity. To comply with the permit, Champion must change their production process from a chlorine bleach process to the oxygen delignification process. We believe that the process change will substantially reduce the formation of dioxin, primarily because of the substitution of oxygen for chlorine in much of the pulp bleaching process.

Both States are in the variance process, and if they both grant the necessary variances for the color standard that EPA can approve under our regulations, we will proceed to issue a draft permit consistent with state and federal requirements. We hope to issue a final permit in September of this year. Issuance will trigger the mill reconstruction, and when finished three years hence, will result in the cleanest Pigeon River in over 80 years.

Mr. Chairman, we at EPA are committed to the cleanup of the Pigeon, and will work with the states to restore the river and keep the mill open. I will be pleased to answer your questions.

DIOXIN CHRONOLOGY

November 28, 1983	EPA Dioxin Strategy published - focus was on production, disposal, and processing sites where pesticides contaminated with dioxin were being handled. EPA established seven study tiers based on decreasing potential for dioxin contamination. Tier 1, most likely, Tier 7 sites where there were no previously known sources of dioxin.
April 1986	Final draft - The National Dioxin Study, Tiers 3, 5, 6, and 7. Draft report notes that pulp and paper mills are a "previously unsuspected possible source," and will be investigated.
April/May 1986	Results of Tier 7 sampling showed fish contamination with dioxin at several Region 4 sites, but none above FDA action level of 25 ppt. Highest result was an Alabama fish. Alabama requested funding to do more sampling. Funding was provided by EPA, Region 4.
June 1986 - January 1987	Field work (sampling) conducted on so-called five-mill study by EPA HQ and paper industry. Study looked at 5 mills in U.S., none in Region 4, as follow-up to National Dioxin Study.
February 1987	Final Report - The National Dioxin Study.
May 1987	Results of Alabama re-sampling became available. Highest figure was 16.6 ppt, below FDA action level.
September 11, 1987	Initial draft NPDES permitting strategy sent from EPA-HQ.
October 1987	Results of 5 mill study made available at National Meeting. Results showed dioxin contamination in the effluent of 3 mills and in the sludge of 5 mills.
October 5, 1987	Information letter sent to Region 4 states, transmitting HQ briefing materials, preliminary results of a 5 mill study, a list of Region 4 pulp and paper mills, and initial draft NPDES permitting strategy. Comments on draft strategy requested by October 17, 1988.

November 2, 1987	NC Pigeon River fish samples collected by State of NC near Clyde, NC to be analyzed for dioxin as a part of the National Bioaccumulation Study.
November 4, 1987	Informal revised draft Champion (Canton Mill) permit sent to TN, NC, and Champion. Dioxins not considered in permit. Awaiting completion of the National Permitting Strategy for dioxins.
November 27, 1987	Weekly activity report of AA for Pesticides and Toxic Substance notes discussions underway with the paper industry (API) to enter into a cooperative agreement to do further data collection regarding dioxins in the pulp and paper industry. (See 2/2/88)
November 30, 1987	Revised draft Champion permit sent to public notice.
December 1, 1987	Letter sent to Region 4 states transmitting revised draft national permitting strategy dated November 18, 1987, from EPA-HQ.
December 7, 1987	Letter sent to Region 4 states transmitting results of 5 mill study.
December 29, 1987	Letter sent to Region 4 states reiterating results of 5 mill study, transmitting a list of bleaching mills in Region 4, and informing them that ESD-Athens was coordinating fish tissue sampling below all Region 4 mills with the states. Letter noted that positive results were likely.
January 14 & 21, 1988	Asheville and Knoxville public hearings on draft Champion permit. Permit writer's statement for the record noted that additional data on dioxins below bleached kraft mills was being collected and a national strategy was being formulated. The permit proposed to be issued may be modified as a result of these activities.
February 2, 1988	EPA-HQs sent data collection request to OMB for the EPA/API cooperative study of 105 pulp and paper mills in the U.S. that use chlorine in their process.
January 15 & February 2, 1988	TN biologists collect Pigeon River fish near Newport, TN for dioxin analysis. January 15th collection was deemed by TN as not acceptable or representative and thus additional fish were collected on February 2, 1988.

February 22, 1988	After meetings with N.C. and Tennessee, Champion agreed to accept a revised draft permit which would include extensive monitoring for dioxins. This draft was contingent upon water quality standards actions in Tennessee and N.C.
March 14, 1988	Dioxin data on Tennessee Pigeon River fish released by Region 4 EPA. Data showed 25 parts per trillion (ppt) in a whole carp and 0.17 ppt in the edible portion of a rock bass.
March 22, 1988	Water Management Division Director led discussion of dioxin at pulp and paper mills with state environmental program directors and EPA Regional Administrator during meeting at Lake Barkley, KY. Consensus was reached that the data base was inadequate to make informed decisions, and that more monitoring would be appropriate.
March 25, 1988	Letter sent to Region 4 State Directors informing them of national study (EPA/API), and asking them to take steps to obtain more data from all mills in their states.
April 11, 1988	Dioxin data on Pigeon River fish collected in N.C. released by Region 4 EPA. Data showed 93 ppt in a whole white sucker. Analytical problems prevented an accurate measurement of dioxins in the edible tissue of red-breasted sunfish. Additional sampling is planned.
April 14, 1988	Requested FDA to confirm that 25 ppt total dioxin is the level of concern in edible fish tissue.
April 1988	Ten water wells in Hartford, TN. community sampled by EPA personnel. Samples to be analyzed for dioxins, radioactive contaminants and selected additional parameters.
April 29, 1988	FDA response confirming that 25 ppt total dioxin is the level of concern in edible fish tissue.
May 9, 1988	Meeting held in Atlanta to discuss and finalize a plan of study for additional sampling of the project area. Attending were representatives from TN and NC fishery resource agencies, TN and NC water pollution control agencies, Dead Pigeon River Council, Pigeon River Action Group, Champion Intl., and EPA staff.

May 19, 1988	Letter mailed to the eight Region IV states transmitting the EPA/Paper Industry Cooperative Dioxin Study signed on April 25, 1988.
May 20, 1988	Final plan of study for the Pigeon River developed and transmitted to meeting participants of May 9, 1988.
May 26, 1988	EPA released results (non-radiological) of 10 drinking water wells near Hartford, Tennessee, that were sampled on April 18-20. No detectable levels of dioxin were found nor any metals at a level of concern.
June 6, 1988	EPA released results of dioxin levels in fish collected on January 8, 1988, from Elevenmile Creek near Cantonment, Florida. Dioxin was found at a level of 25.5 ppt in a composite of two whole body carp, and 4.4 ppt in the fillet tissue of a small-sized largemouth bass.
June 14, 1988	EPA released results of radon levels of ten drinking water wells near Hartford, Tennessee, that were sampled on April 18-20. Radon was found to be present at levels ranging from 122 picocuries per liter (pCi/l) to 11,334 pCi/l. Presently there are no standards for radon in drinking water.
June 24, 1988	EPA released results of dioxin levels in Pigeon River fish collected in North Carolina and Tennessee during the week of April 18, 1988. Concentrations in fillets from Waterville Reservoir in North Carolina ranged from 3.4 ppt to 80 ppt. Based upon these data North Carolina recommended that no fish be consumed if caught between Canton and the TN/NC state line. Traces of dioxin were found in game fish fillets from Douglas Reservoir in Tennessee (less that 1 ppt.). Carp fillets ranged from less than 1 ppt to 1.6 ppt. The State of Tennessee advised that these levels represent no public health risk.

STATEMENT OF
MARTHA G. PROTHRO
DIRECTOR
OFFICE OF WATER REGULATIONS AND STANDARDS
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES
OF THE
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, D.C.

July 13, 1988

Good morning. My name is Martha Prothro, and I am Director of the Environmental Protection Agency's Office of Water Regulations and Standards. I am here today to describe my office's nationwide initiatives concerning the chemical compound dioxin. These initiatives led to the discovery of dioxin contamination in the Pigeon River, as just described by Mr. Barrett. I will also discuss our strategy for additional data gathering and for protecting the aquatic environment from dioxin contamination. First, I will briefly describe the dioxin family of chemical compounds in order to provide you with some background on this issue.

The family of dioxins includes over 200 related chemical compounds with varying chemical, physical, and toxicological properties. Dioxins are unwanted by-products in the manufacture of chemical products, in certain combustion processes, and in chemical wood pulp bleaching operations.

Several of the dioxins are highly toxic, especially 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). Experimental studies with 2,3,7,8-TCDD in animals have demonstrated a variety of toxic effects. Based on these animal studies, EPA considers 2,3,7,8-TCDD to be a probable carcinogen in humans.

EPA's specific regulatory efforts with respect to dioxin began in the early 1970's when the Agency initiated proceedings to cancel the registration of certain uses of the pesticide 2,4,5-trichlorophenoxy acetic acid (2,4,5-T). This compound and its precursor, 2,4,5-trichlorophenol (2,4,5-TCP) were the only major sources of dioxin that had been identified at that time. It was discovered that 2,3,7,8-TCDD was formed in the synthesis of the 2,4,5-TCP intermediate in the manufacturing process.

Because of the toxicity of dioxins, the persistence of dioxins in soils and sediments, and the detection of dioxins at a variety of sites in the U.S., EPA issued a Dioxin Strategy in 1983 to establish a framework for addressing dioxin contamination. The Dioxin Strategy included three initiatives: (1) a broad National Dioxin Study of dioxin contamination in the environment and its associated risks; (2) enforcement and cleanup actions directed at contaminated sites; and (3) evaluation of regulatory and disposal alternatives to prevent future environmental contamination. The Strategy also established a management framework for coordinating the numerous dioxin-related activities throughout the Agency.

EPA's National Dioxin Study included investigation of production and disposal sites for the pesticide 2,4,5-T and its precursor 2,4,5-TCP. Waste combustion facilities were also investigated since 2,3,7,8-TCDD was determined to be present in incinerator flue gas. EPA also analyzed over 4,000 samples of soil, sediment, fish, water, plants, and animals from 862 sites nationwide. As a result of these investigations, further sampling, clean up actions, emergency removals, or the issuance of health and fish advisories were initiated at 53 sites where potential exposures presented cause for concern.

A major, previously unexpected finding of the National Dioxin Study was that dioxin was present in fish downstream from 57 percent of the pulp and paper mill sites sampled. To follow up on these National Dioxin Study results, EPA sampled sludge at 22 pulp and paper mills in Wisconsin, Minnesota, and Maine in late 1985. It appeared at the time that dioxin was probably being formed as a by-product during the bleaching of wood pulp with chlorine or chlorine derivatives. Of the 22 mills, the highest dioxin level in sludge was found at a mill in International Falls, Minnesota. In cooperation with our Region V Office, we decided to obtain detailed sampling data for this mill. In March 1986, EPA requested that the company provide access and assistance to EPA and State staff in an intensive dioxin sampling study.

Before sampling actually took place at the request of the Minnesota mill, the American Paper Institute (API) and the National

Council of the Paper Industry for Air and Stream Improvement (NCASI), asked to participate in this mill sampling and urged that the study be expanded from one to five mills. The industry agreed to fund a portion of the project and to supply detailed process information for each mill selected for study. In June 1986, EPA and industry representatives entered into this agreement for a Cooperative Dioxin Screening Study, often referred to as the "Five Mill Study." The voluntary cooperation of the industry at this stage helped assure a more expeditious sampling program. Full scale sampling began in June and ended in January 1987. In the agreement, EPA retained its authority under Section 308 of the Clean Water Act to require additional data to be submitted if necessary.

While the sampling effort was underway, EPA successfully undertook to improve analytical methods so that additional dioxin and furan compounds could be analyzed at lower detection levels in the Five Mill Study. EPA provided Congress with preliminary results from the Five Mill Study along with the National Dioxin Study Report in September 1987. A summary of the preliminary results was also made public in October 1987 at an International Dioxin Symposium held in Las Vegas, Nevada. Dioxins and/or furans were found in the effluents of four of the five mills, the pulps of all five mills, and the wastewater treatment plant sludges of all five mills. EPA recently published the final technical report for the Five Mill Study.

Because we found dioxin in the pulps at the five mills, it appeared necessary to consider the possibile health impacts of the presence of dioxin in some consumer and food packaging products. We therefore provided this information to EPA's Office of Toxic Substances (OTS) and other federal agencies, including the U.S. Food and Drug Administration (FDA) and the Consumer Product Safety Commission (CPSC). An interagency group then agreed to follow up on the Five Mill Study by further characterizing dioxin levels at U.S. pulp and paper mills bleaching pulp with chlorine or chlorine derivatives. At the same time, the pulp and paper industry represented by API and NCASI expressed an interest in again cooperating voluntarily on follow-up work. In November 1987, we described to paper industry representatives in detail the data needs of the federal agencies, and a cooperative approach to gathering that information was developed.

On March 8, 1988, the Office of Management and Budget approved the cooperative data collection activities agreed upon by EPA and the industry. On April 25, 1988, the cooperative agreement was signed by all parties. Forty-two companies representing 103 mills where chlorine or chlorine derivatives are used to bleach pulp have agreed to participate. From this study, EPA will receive from each company all existing dioxin/furan analytical results, detailed bleach plant process information, information on wastewater treatment systems and sludge disposal practices, and dioxin/furan 5-day composite results of effluents, sludges, and pulps. Sampling has already begun.

Again, the industry's willingness to cooperate in a study of the 103 mills assured the most expeditious information gathering possible. By agreement, the industry is funding the total project which is now underway. EPA is specifying consistent sampling and analytical protocols and reporting methods to be used and is auditing all stages of the study. Industry will submit to EPA much more extensive process information and dioxin data for 25 of the 103 mills the study covers. If any of the companies should fail to cooperate or if additional information is needed, EPA will exercise its authority under Section 308 of the Clean Water Act to require that all necessary information be developed and provided to us. EPA will release the results from this study as information becomes available. We expect to have all of the agreed upon dioxin analytical data by the spring of 1989.

In addition to the efforts already described, my staff is assessing treatment technologies to reduce dioxin levels. For example, samples were taken from two mills in December 1987 to assess the potential for reducing effluent levels of total suspended solids and dioxin by adding coagulants or polymers. We expect to publish the results from this study next month.

Another potential technology for reducing dioxin discharges is oxygen delignification. This technology is a bleaching process where oxygen is used prior to chlorine bleaching. This summer we will sample several mills that use oxygen delignification. We plan to study the data from all of these activities and to revise, if necessary, the nationally applicable pulp and paper mill effluent limitations guidelines. These guidelines establish the minimum technology-based effluent controls that pulp and paper mills must achieve.

One more study is currently underway that will be relevant to our regulation of dioxins in pulp mill effluents. The National Bioaccumulation Study was initiated to determine whether fish tissue has been contaminated by any of approximately 65 pollutants of concern, including dioxins and furans. EPA initiated this nationwide fish tissue sampling survey at approximately 400 sites to discover whether pollutants with properties similar to 2,3,7,8-TCDD might bioaccumulate in the aquatic food chain. Final results should be available by the spring of next year. To date, dioxin has been detected in fish tissue collected near 36 mills using chlorine to bleach pulp. No dioxin was detected in fish tissue collected near three mills. Levels in the whole fish samples ranged from less than 1 to 118 parts per trillion. Detectable levels in the fillet samples, the edible portions of the fish, were generally much lower than those found in the whole fish samples. Moreover, the levels in the fillets were found to be below the FDA action level of 25 parts per trillion. However, in certain areas, state health agencies have issued fish consumption advisories. We anticipate that additional fish consumption advisories will be made as more data becomes available.

Finally, I will briefly discuss our plans for issuing or revising discharge permits for the affected mills. EPA is developing a long-term NPDES permitting strategy for pulp mill dioxin discharges. We plan to issue final guidance to EPA regions and the states after review of the effluent, sludge, and pulp data from the cooperative study. However, in the meantime, permit writers will take appropriate action in modifying NPDES permits for mills where dioxin is detected. Appropriate permit requirements may include effluent limitations on dioxin discharges, additional effluent and/or water quality monitoring requirements, reopener provisions to allow for more stringent control requirements wherever necessary and appropriate, and requirements to conduct further studies on treatment technologies. My staff is available to provide technical assistance to state and EPA Regional permit writers.

You may be interested to know that EPA is also following dioxin-related activities in other countries. In November 1987, Office of Water staff met with representatives from the Swedish Environmental Protection Board and Environment Canada in Washington, D.C. to discuss, among other things, the presence of pollutants of concern, including dioxins/furans and other chlorinated organics in bleached pulp and paper mill effluents. Representatives of the three nations agreed to exchange information. In addition, we have had several subsequent technical exchanges with Environment Canada.

This concludes my prepared testimony. I will be pleased to answer any questions you may have. Thank you.

Mr. NOWAK. Our next group of witnesses will be from the local officials in this general area. We want to welcome the Hon. Jeanne Wilson, who is the Mayor of the city of Newport, TN, if she will come forward.

We will take the individuals as a panel. The Hon. Ronnie Davis, who is a Tennessee State representative; Mr. Jerry Clevenger, who is the chairman of the Cocke County Commission; the Hon. Charles Lewis Moore, who is Cocke County executive; and Mr. Roy T. Campbell, who is a Newport City attorney. Ladies and gentlemen, let me welcome you before the committee.

Again, as I will mention to other panels, I advise you that the statements which you have submitted and which we would have a chance to review and look at will be incorporated in the record in their totality. We would appreciate any summarization that you would like to make, or any additions that perhaps you know are covered in other statements, so that we can move through panels as well as we can.

If you would like to begin, Mayor, please do.

Ms. WILSON. Thank you, sir.

TESTIMONY OF HON. JEANNE WILSON, MAYOR, CITY OF NEWPORT, TN; RONNIE DAVIS, STATE REPRESENTATIVE FOR DISTRICT 11, TENNESSEE; JERRY CLEVENGER, CHAIRMAN, COCKE COUNTY COMMISSION; CHARLES LEWIS MOORE, COCKE COUNTY EXECUTIVE; AND ROY T. CAMPBELL, CITY ATTORNEY, NEWPORT, TN

Ms. WILSON. Your honor, honorable committee members, thank you for allowing me to come before you today representing the citizens of Newport, TN. I am here to speak on their behalf concerning the dead Pigeon River which flows through the States of North Carolina and Tennessee, including our city of Newport located in Cocke County.

The Pigeon River is dead because of the serious pollution which has been allowed to happen over the last 80 years due to industry along the river. The major industry which is continuing to pollute the river is Champion Paper Co., located in Canton, NC. Champion Paper Co. leaders have expressed to us in the last couple of years that they were taking steps to clean the river, but we are not seeing positive results.

Our city of Newport, which is located in beautiful Cocke County, consists of the finest people in the world, who, like people everywhere in America need to feel their self-worth by being able to have a legitimate job and live in an area with as pristine a river flowing through it as the people who live above the Champion Paper Co.

Our economy has suffered tremendously over the years. A clean Pigeon River will certainly turn this suffering around by creating an environment for additional jobs, manufacturing, and tourism as well as allowing people to live along the Pigeon River.

The Champion Paper Co. should follow the Federal Clean Water Act of 1972 which has cleaned other rivers such as Maine's Androscoggin River. We are thankful that the State of Tennessee has high water quality standards and has supported our local, unified effort in trying to get Champion Paper Co. to do what it should be doing anyway.

When the health and welfare of our people are threatened by a stream of polluted water flowing through our city, then we are seriously negligent of our duties as stewards of the land and water resources that God has given us to care for while we are here on this earth. It is most assuredly our duty to leave to posterity a clean, healthy Pigeon River.

Thank you for listening to the testimony of one who sincerely represents her people.

Mr. NOWAK. Thank you very much.

Let me now turn to Ronnie Davis, a Tennessee State representative. Mr. Davis.

Mr. DAVIS. Thank you, Mr. Chairman, and members of the committee. It is good to see my distinguished Congressman today from Tennessee.

The statement I want to read is basically the information of a house joint resolution I passed in May 1987 in the house of representatives in Tennessee.

I am Ronnie Davis, State representative for District 11 of Tennessee, which includes all of Cocke County. My district takes in the total length of the Big Pigeon River in Tennessee, from where it crosses the State's boundary with North Carolina and eventually flows into the French Broad River just east of Douglas Lake a short distance from Newport, the Cocke County seat.

The immediate question before this committee regards the presence of dioxin in the waters and in the fish in the Pigeon River. But to those of us who have lived with the river's pollution for generations, the problem goes beyond even the danger of this deadly poison.

Over 30 years ago, as a young boy in Cocke County, I was told that the pollution of the Pigeon River came from many sources. Now we know the river's condition results from discharges of Champion International's paper mill in Canton. The river has been polluted by Champion for 80 years—since 1908.

More than 60 miles of the river are severely polluted by discharges from Champion's paper mill. The mill dumps large amount of solid chemicals and colorants into the stream daily. In addition, the discharges heat the river's water to a level considerably warmer than the 29 degrees centigrade which denotes the highest possible temperature for a healthy stream. The river above the paper mill is classified as class A, the highest possible rating. But below the mill the river is classified as C, unfit for human contact.

Champion's continued pollution of the Pigeon River has resulted in a first-rate trout stream being turned into a murky, smelly, foamy stream devoid of 90 percent of the fish found upstream from the mill. Plankton and algae growth have seriously impacted the river and have virtually destroyed the food chain of this mountain stream, resulting in a biosphere being taken over by pollution-tolerant organisms common to the seriously degraded water.

It is truly a shame that many thousands of people have been denied the beauty, enjoyment, and economic benefits the Pigeon River could offer. Almost the whole length of the river, if clean, could become a beautiful recreational area which would attract many visitors, particularly in view of the stream's nearness to Interstate 40. Experts say the river, if cleaned up, could produce fish in abundance within a 3-year period. Instead, millions of travelers taking one of the Nation's most scenic drives, the Knoxville-Asheville, NC, section of Interstate 40, now see the river in its polluted condition.

Over the years, numerous attempts to influence cleanup of the Pigeon River have met with little success. But in 1983, the formation of the Dead Pigeon River Council brought a promise of real progress, despite Champion's continuing pollution.

The river and those who enjoy it have been deprived too long. The people and the State agencies of Tennessee—and our honorable Congressman Quillen—are determined that a change is going to be made.

The Environmental Protection Agency has suspended the State of North Carolina's right to issue a water quality permit to Champion, citing the State's failure to force Champion to conform with Clean Water Act of 1972. The Champion company has very recently lost its appeal of this ruling in the U.S. Circuit Court of Appeals.

The expectations of Champion are more than reasonable. The corporation is merely being asked to begin meeting the same standards for discharging wastewater that companies in Tennessee and elsewhere observe. No payment for previous years of damage is being requested. Legal decisions should not be required to bring about such an action by Champion. Good corporate citizenship and an appreciation of the natural beauty of western North Carolina and east Tennessee should be sufficient, if the company will act in good faith.

The conversion of the Pigeon River into a clear, beautiful stream will help promote economic growth for the east Tennessee and western North Carolina area. A cleanup of the river and restoration to its natural beauty will make the area a more desirable environment for the new businesses, industry, and residents.

I call upon this committee to see that the needed changes are made. It is plainly evident that the Pigeon River must be cleaned up, whether voluntarily or through legal processes. The cleanup can be simplified and further ill will avoided if this committee will make a determined stand and if Champion International recognizes its responsibilities for compliance with the Clean Water Act.

I appeal to this committee and to Champion to act quickly to clean up the river and, in doing so, demonstrate a spirit of respect for the environment and of corporate and governmental responsibilities.

I thank the committee, and I thank the people that drove up to Washington.

Mr. **Nowak**. Thank you very much.

We will now hear from Mr. Jerry Clevenger, who is the chairman of the Cocke County Commission.

Mr. **Clevenger**. Thank you, Mr. Chairman.

Mr. Chairman, and honorable members of the committee, the deplorable condition of the Pigeon River is of grave concern to the people of the east Tennessee Valley and environmentalists everywhere. We need your help.

We are beginning to have serious doubts about the integrity of the Environmental Protection Agency—enough doubts, that we suggest a name change would be in order. Perhaps the name should be the ECA—the Environmental Compromising Agency would be more suitable.

According to Webster, the word protection means just that. The EPA has a mandate to protect the environment, not to compromise the beauty and cleanliness of any waterway, including the Pigeon River. Such a compromise has been made with the Champion Paper Co. concerning the aforementioned river.

You are protecting no one when dangerous levels of dioxin and other toxins are allowed under the agreement with Champion. They are and will continue to be dumped into the river. We contend that such an agreement will only partially clean up a once beautiful river and will seriously compromise the integrity and enforcement power of the EPA.

Let me give you a couple of examples. What if Congress would simply stand by idly and allow the FBI to compromise with dangerous criminals and felons. Certainly Congress would not stand still if the Treasury Department, the Federal Reserve, and other Federal economic agencies had the license to compromise away the economic stability of our great country. So how can we stand by and let the EPA compromise away one of our most precious commodities, clean, fresh water.

Since 1984, east Tennessee, as well as other parts of the country, have felt the devastating effects of a serious drought. The lack of fresh water resources have taken a serious toll on our farmers and our homeowners. Perhaps this has made us much more conscious of our water resources and has made us cherish them even more.

We have learned that the Champion Corp. enjoys a healthy, if not overwhelming financial position. We contend that a total cleanup of the river would neither harm that standing or force Champion into a desperate situation.

Several experts contend, and we believe, that allowing the continuous dumping of dioxin into the Pigeon River will constitute a death sentence for people who live along or nearby the river.

Much attention has been paid to the plight of the river by local, regional, and national media. They have gone as far as to dub a community in our county that rests along the river as "widowville," because of the unusually high rate of cancer-related deaths in that community. We ask this committee, as most certainly the EPA, how can you put a monetary value on a human life?

We believe the EPA should not be an arbitrary agent between those who are desirous of a clean river and an industry that is worried only about a small, and by their own financial reports, minute expenditure of monies. Moreover, we suggest the EPA get back to the task of cleaning up the environment instead of making deals that will only half clean up the river. We think their mandate, upon formation, was to protect our environment, not partially protect, but totally protect out natural resources.

Certainly a federally named arbitrator could have effected the same agreement with Champion Corp. that EPA did without the tremendous expenditures of taxpayers' money that has resulted in an expensive smoke screen and assault on the intelligence of the people in our community.

In closing, we only ask that this committee take a long look into the actions of the EPA in regards to the cleanup of the Pigeon River. As county chairman of Cocke County, I take this opportunity to invite members of this committee to visit our community and see first-hand the situation that has been forced on us by the wheeling, dealing, and compromise solution between Champion Corp. and the EPA.

This reminds me of a motto that we have seen and read, "I have compromised no values to gain this office and will compromise no values to keep it." Perhaps members in authority at EPA should read and heed this moral message.

Thank you very much for your attention and in advance for any help that you may give us in the future. Thank you.

Mr. NOWAK. Thank you.

We will now hear from the Hon. Charles Lewis Moore, Cocke County executive. Mr. Moore.

Mr. MOORE. Mr. Chairman, and distinguished members of the Water Resources Subcommittee, I am Charles Lewis Moore. I am honored to be the county executive of Cocke County, TN. I also was honored to serve for 10 years as a Congressional Liaison Officer here on Capitol Hill. I left the service in 1982.

Cocke County, TN is located on Interstate 40 approximately 50 miles east of Knoxville. Our county is bounded by Madison and Haywood Counties of North Carolina.

We appreciate the opportunity to appear before this distinguished committee in order to discuss an issue that is extremely important to our region, which is the pollution of the Pigeon River.

The Pigeon River originates in the State of North Carolina as a crystal, clear, and uncontaminated waterway that can be enjoyed for recreational activities such as trout fishing which requires pure and clean water. But the Pigeon River's continuous water flow is interrupted by the Champion International paper mill located in Canton, NC, which routes most of the water through its plant operation.

The discharge of the water after it has been used in the paper mill is routed back into the river bed in a black, foamy, filthy, dirty, smelly, polluted, and hot nuisance, which eventually flows approximately 28 miles within the State boundary of Tennessee through one of the most beautiful areas of our county of approximately 29,000 residents.

In addition, the waterflow of Pigeon River joins the French Broad River in our county and enters into the Douglas Lake Reservoir and eventually flows downstream to the location in which the city of Knoxville, TN obtains its water supply for both residential and commercial use. The Pigeon River flows through the heart of the city of Newport, which is the only major city in our county.

As a result of the pollution of the river by Champion, we are unable to use to river to construct any homes, agricultural purposes, recreational activities, or for drinking water. Therefore, we must extend our water facilities 6 miles over a mountain to the French Broad River in order to obtain water to be used in our county. As a result, the county taxpayer and consumers of the water must bear a portion of the additional expense of the expansion of the water facility over a mountain rather than obtain it from a more centrally located water supply as the Pigeon River.

We cannot be found of guilty of not having patience, for we have been very tolerable of this circumstance for over 80 long, lengthy years. Champion International Paper Corp. has continually promised since the early 1900's to correct this terrible situation, but to this date to no avail.

We are extremely concerned about the health of our citizens and the endangered species within the river and the effect the pollution is having upon them. Just recently, gentleman, we accidentally discovered that the Pigeon River contained dioxin. Scientific evidence has linked this chemical to causing cancer, among other health threats. We feel that the Environmental Protection Agency, which was established in 1970, has failed in its goal to protect the citizens of this region miserably by not taking the necessary steps to ensure that the environment is protected.

We have an extremely high rate of cancer among our citizens, especially the senior citizens which live near the river. The fear and anxiety that lingers over the head of our people due to the dioxin and pollutants in the waterway is intolerable.

At the present time, the EPA has made very few attempts to provide a briefing or to bring me up-to-date on any of the ongoing research concerning the health hazards of our citizens. When we have questioned the governmental Agency concerning this situation of the river, we have received answers such as, "I do not know" or "I am unable to disclose any information at this time." When we have quizzed the EPA as to the possibility of additional environmental danger which exists within the river, we continue to receive the same answer that states the governmental agency does not know.

In addition, we have received information that EPA does not have the proper laboratory facilities to give us any type of indication of additional dangers that could continue to linger over our citizens. I want to take this opportunity to restate that it has been proven that the fish that have been tested are a danger to both humans and animals. The environmental specialists or technicians that will speak at a later time on this agenda will provide each of gentleman with a greater insight as to how the dioxins that are in the river pose a real threat to us and the river.

Our county has the unwanted distinction of having the highest average unemployment rate in the State of Tennessee for the past 2 years. And our county was either first or second in this category for the previous two years. In fact, the average annual income of the citizens of Cocke County is approximately $6,800 per year, and this is in the United States of America. We feel that the Pigeon River could help alleviate this problem by bringing in millions of dollars in revenues for agricultural and recreational purposes. In fact, this estimated loss in revenues can be substantiated by a study conducted by Walter State College located in Morristown, TN.

As you all are quite aware, our country is facing the worse drought on record. Therefore, water has become a precious commodity which is becoming more scarce as the drought continues to plague our great Nation. But we cannot use the water from Pigeon River for commercial consumption, agricultural needs, and the various recreational activities than an environmentally clean waterway could provide our citizens.

Therefore, we are very disappointed with the lack of action taken by the EPA. As the chief elected official of Cocke County, it is my feeling that the EPA has continuously shown an attitude towards our county and our region that they cannot provide substantial information that leaves me with the impression that they really do not care.

I appreciate the fact that Congress had the foresight to enact laws and regulations to provide a means of protection for the environment. But it is amazing to me that the EPA was established to provide a means to protect the environment and has the provisions for clean water and air. We feel that as far as protecting the environment of this area the EPA rates a zero. At this time, the citizens of my county feel quite uneasy with the EPA.

It is my belief that the technology exists and is available to initiate a cleanup project by Champion to make the river a more beautiful and environmentally safe waterway. The financial records of Champion International indicate that they are a corporate giant which would be able to make the necessary expenditures to clean up the river.

Cocke County is a small county which does not possess the financial means to fight a corporate giant such as Champion. As a result, we depend upon gentlemen such as you, the Congress, and other distinct sources that are vitally interested in the environment.

We feel that the expenditure could and should be used to restructure their current procedures rather than to dump into a river that is so vital to thousands of people downstream. But it appears that Champion is continuing to discharge more pollutants into the once beautiful Pigeon River.

We appreciate your concern for the clean water and air. We feel that this is the foundation in which the EPA was created. It is hard for me to believe that in this day and age we have such a menace within our society.

I thank you, Mr. Chairman, and distinguished subcommittee members, for allowing me to take this opportunity to speak to you on behalf of Cocke County, TN concerning the pollution of the Pigeon River.

Mr. **Nowak**. Thank you very much for that testimony, Mr. County Executive.

Now let us turn to the counsel for the city of Newport, the city attorney, Mr. Roy T. Campbell. Mr. Campbell.

Mr. **Campbell**. Thank you, Mr. Chairman.

I am Roy Campbell. I am the city attorney for Newport, TN. I am also a member of the Industrial Development Board of Cocke County, TN, and presently serve as attorney for that board. I have lived in Newport all of my life with the exception of my Army time and my years at the University of Tennessee at Knoxville.

My mother, who is presently 91 years of age, is from western North Carolina. She taught school before 1920 for a year as a grade school teacher in Canton, NC, which is the home of Champion.

Champion was polluting the air and water back at that time as they are now. They were promising to clean up their pollution which they have never done.

We are disturbed and upset over the permit issued to Champion by EPA without proper consultation with our local people even though our people were responsible for bringing the matter to the attention of the authorities and were pressing for some action on the pollution by Champion. The matter had apparently been resolved by the courts favorably to EPA. Then suddenly, a deal was struck by the politicians favorable to Champion without any consultation with the concerned parties. In short and in language we can all understand, this arrangement stinks.

The Pigeon River flows directly through the downtown section of Newport. The back door of the city hall opens on the river. The water is black and at times stinks to high heaven. It has a white foam that reminds you of soap suds. It isn't safe to swim in the water. You certainly can't drink it. Nothing but rough fish, carp and the like, can survive in it.

From the city of Newport eastwardly to the North Carolina State line, there has been practically no commercial development of any kind for nearly a century because of the pollution of this stream. Now we learn about dioxin in the water which is an additional problem.

We live in a beautiful section of the United States. We adjoin the Great Smoky Mountains National Park and the North Carolina State line. About 40,000 acres of our county is in the Cherokee National Forest. We don't have a lot of level land. Most of our land is mountains and hilly, so we are dependent to a certain extent on tourism as a form of economic development.

The blight of this river caused by one poor corporate citizen with total disregard for the rights and health of others who are less fortunate needs to be stopped. EPA has it in its power to do something about this.

The Pigeon River empties into the French Broad River, which forms Douglas Reservoir in the Tennessee Valley system. The city of Dandridge takes its water from Douglas Reservoir. As the water passes through Douglas Dam, it becomes the Tennessee River. The city of Knoxville takes its municipal water from the Tennessee River. The city of Sevierville, TN, is planning to get an additional supply of water out of Douglas Lake. Douglas Lake is a beautiful area for recreation and fishing. Many people eat the fish taken from Douglas Lake.

We feel that this threat of dioxin needs to be examined in great detail. The permit issued to Champion needs to be reviewed and possibly steps taken by the Federal Government to insure the health and safety of individuals downstream from Champion who are in jeopardy.

Champion has never acted in good faith about this matter. For years now they have been promising to clean up this mess but never have taken any real steps. We insist that this permit, which would only do half enough even if Champion were to act in good faith, should be reviewed. What this permit would do is prolong the matter for another decade or generation. In view of the dioxin threat, this situation should not be tolerated by EPA.

We call on the Federal Government. We plead with the Federal Government to come to the rescue of the people in east Tennessee who deserve better treatment.

Thank you, Mr. Chairman.

Mr. **Nowak**. Counselor, thank you very much.

We are in the second call of a rollcall vote. We would like to have the panel stay, if you will. We're going to take a recess for 10 minutes and come right back for some pertinent questions. Then we'll move on to the other panels.

[Recess.]

Mr. **Nowak**. The subcommittee will please come back to order.

We have just concluded the testimony of the local officials here.

I'll ask the counsel. Counsel, you've made the statement in your testimony about the permit—are you comfortable with the cooperation you're receiving from the State of Tennessee, as far as your advocacy in following this permit process?

Mr. **Campbell**. Not really.

Mr. **Nowak**. Would you take a microphone please?

Mr. **Campbell**. Not really, Mr. Chairman. We feel like that was probably inadvisably—without proper information—agreed upon. We're not happy with that at all.

Mr. **Nowak**. In your review, were there any other steps that you could take as a community—either the city or the county—to pursue your interests through the process?

Mr. **Campbell**. I assume you refer to litigation or something of that nature.

At one time it was considered rather serious to attempt to get injunctive relief. The cost of it would probably have been prohibitive for a small town or a small county to try to litigate with an industrial giant the size of Champion. That was one of the factors that that approach was abandoned.

Mr. **Nowak**. In my understanding, Vermont, under common law, brought such a law suit against the polluter and the State. I would just refer that perhaps for review. We will also be looking at that in greater detail.

It's a very complicated area, as you've stated. But I think it's something that could be looked at as we review the whole series of relationships like that, not only under this law but also the Superfund. This whole matter is going to be looked at in the future as we see the results of the compliances through the permit process. I'm going to bring that to your attention.

I assume that your dissatisfaction—somewhere along the line over these long number of years, even perhaps preceding the EPA action, you've contacted Champion, directly?

Mr. **Campbell**. As far back as 1960, certainly. There was a full page advertisement taken by Champion in our local newspaper—this is a matter of record from some other hearing—showing that they were going to clean up the river back at that time. That's the reason that we say they've not acted in good faith about this matter. In fact, the bottom line is that they haven't done anything to really substantially alleviate the situation.

Mr. **Nowak**. Let me turn to Mr. Quillen for any questions he may have of this panel at this time.

Mr. **Quillen**. Thank you, Mr. Chairman.

I just want to congratulate the group for their very excellent statements.

I'm familiar with the Pigeon River. I know that it has been not only a drain on the health of the community, but also on the economic development of that county as a whole. What a beautiful county it is. I don't say that just because I represent Cocke County. I say it because I mean it. That tourist development would be outstanding.

I'll let either of you answer this question. You might have alluded to it. I think you did in your statement.

From a tourist loss and financial loss perspective, in your opinion, what has it cost the county for the Pigeon River to be so polluted during the last years from 1960, or, as a matter of fact, for the last 80 years? What has it cost?

You have Sevier County adjoining Cocke, blooming with tourist attractions. You have the other counties just blooming with tourist attractions, like Jefferson with the lake. And here is Cocke County stalemated. What has it cost Cocke County during the period that Little Pigeon River has been polluted?

Mr. MOORE. Mr. Quillen, I can answer that question, I think.

The river runs parallel to I-40 for about 20 miles. We've had a study conducted by Walters State College that shows that we lose about $7 million annually just from tourism. We have five intersections off of I-40 that are complete. There's about 7 million vehicles that travel that highway yearly. Anyone knows how people love to stop and look and use water.

Certainly the comments you made are correct. We're losing jobs, so we have to send people 50 miles to work for minimum wages. They have to travel an hour and a half to get there. We're losing in so many ways that could help our community. As I mentioned in my statement, the annual wage in our county is only $6,800. That's in the United States.

We know—in fact, I have the study here with me conducted by Walters State—that we're losing $7 million annually. I'm sure it's more than that.

Mr. QUILLEN. Mr. Chairman, I'd like the study by Walters State Community College to be made a part of the record at this point.

Mr. NOWAK. Without objection.

[The study referred to follows:]

An Economic Impact Analysis on the Recreational Benefits of a Restored Pigeon River

and

A Financial Analysis of Champion International Corporation's Ability to Provide for a Clean Pigeon River

by

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An Economic Impact Analysis on the Recreational Benefits of a Restored Pigeon River

Overview

The Pigeon River rises from the Shining Rock and Middle Prong Wilderness Areas in North Carolina flowing northwest into Tennessee. The river carves a deep gorge through the mountains, crossing the Appalachian Trail at the northeastern edge of the Great Smoky Mountains National Park (an International Biosphere Reserve). Since 1908 when the Champion Paper and Fiber Company (now Champion International Corporation) opened their papermill on the Pigeon, 60 of the river's 80 miles from Canton, North Carolina to Douglas Lake in Tennessee have been severely polluted. At present, the river is murky and smelly and is virtually devoid of game fish. Consequently, the river's recreational use is extremely limited, compared to the recreational opportunities and appeal presented by a clean mountain river.

Supply and Demand with Externalities

Champion's pollution of the Pigeon River is an example of what economists refer to as an external diseconomy, which occurs when one firm's use of a resource damages other people who cannot obtain proper compensation. When this happens our free market economy malfunctions somewhat because the firm bears only part of the full cost of that resource, and the outcome is usually not in the best interest of society as a whole.

When an external diseconomy occurs in the marketplace, such as Champion's pollution of the Pigeon River, economists generally agree that direct government regulation is justifiable and the simplest means to change the outcome for society. The externality situation with Champion is depicted in Figure 1. The upward-sloping MSD and MPD lines reflect the incremental damage done to property and people as a result of the pollution produced by Champion. The lower line is the marginal damage, if any, actually incurred by the firm, and is the marginal private damage. The higher line is the total or social marginal damage, including damages to those who are hurt by the pollution but are not compensated for their suffering.

The downward-sloping MCA measures the marginal cost of pollution abatement--how much the company would have to pay to cutback pollution. The present market outcome without federal government intervention comes where the firm balances its own private marginal costs and benefits at point A. At this point, the marginal social damage (dollar amount X) from pollution is greater than the marginal cost of abatement (dollar amount Y). For example, as the accompanying financial analysis report reveals, if Champion spends $60 million in 1987 on capital to control pollution, their projected earnings would be reduced by $7.8 million, or 8 cents per share from $2.65 to $2.57. The social damage, as measured by the economic impact a clean Pigeon River would bring to Western North Carolina and especially Eastern Tennessee, would be expected to exceed that amount.

The efficient point comes at point B where marginal social damages are equated to the marginal cost of abatement. If the Environmental Protection Agency provides for a permit which restores the Pigeon River to a condition suitable for recreational use, the outcome would move from its present point A to point B. The remainder of this economic impact report assumes a Pigeon River cleaned up to such a standard.

Supply and Demand with Externalities-
The Case of Champion's Pollution of the Pigeon River

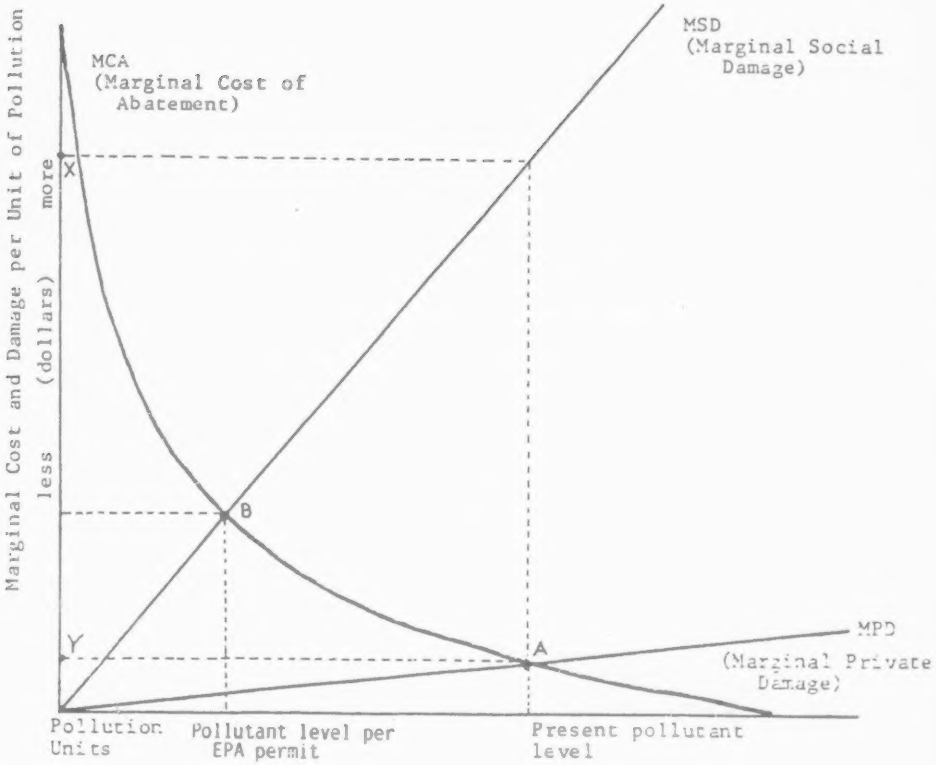


FIGURE 1

Recreational Values

Although the Pigeon River's present state of condition in Tennessee results in very little use for water supply or recreation, it has been demonstrated that a clean mountain river can have a significant economic impact on a region. For example, recreational use on Tennessee's Hiwassee and Ocoee Rivers now exceed 115,000 and 112,000 annual visitors respectively, and the use on North Carolina's Nantahala River now stands at 133,000 annual visitors. In 1981, an economic impact study on the Nantahala River in Swain County, North Carolina found that recreational use of the river provided direct benefits of nearly $2 million in annual sales and 295 jobs.

As outstanding as the three above-mentioned rivers are for recreational use, the Pigeon River has been rated as having even greater potential if cleaned up. Canoe guidebooks such as A Canoeing and Kayaking Guide to the Streams of Tennessee by Sehlinger and Lantz provide comprehensive rating data on such categories as scenery and whitewater rapids. The Pigeon in Tennessee is rated as "exceptionally beautiful" in terms of surrounding scenery, which surpasses the ratings given to the Ocoee and the Hiwassee. In terms of whitewater rapids, the Pigeon's upper five mile run is rated at 19 points, and the lower six mile run is rated at six points. The rating of 19 points exceeds the Nantahala's 17 points and the Hiwassee's 12. A unique characteristic of the Pigeon for floating purposes is that the upper run contains the thrilling type of whitewater which floaters enjoy on the Ocoee and the Nantahala, while the lower part of the Pigeon is ideal for family floating typically observed on the Hiwassee.

The accessibility of the Pigeon River with I-40 nearby exceeds that of the other aforementioned streams. Also given the fact that the boundary of the Great Smoky Mountains National Park closely parallels the upper run of the Pigeon River from the Tennessee state line, and the National Park Service campground at Big Creek is only two miles from the floater's put-in site for the upper whitewater run, the recreational potential is further enhanced.

The practice of assigning values to extramarket goods such as recreation has become routinely accepted during the past 20 years and, in fact, operating agencies have been directed to assign these values whenever possible. When a full-scale study is neither possible nor feasible, the most common method for determining recreational values is the Unit Day Value (UDV) Method, in which informed opinions and judgments are made to approximate the average willingness to pay of users of recreation resources. This method is used by government agencies such as the Tennessee Valley Authority. By applying a carefully thought-out and adjusted unit day value to estimated use, an approximation is obtained that may be used as an estimate of project recreation benefits. Guidelines used for establishing values are taken from the Water Resources Council Federal Register.

There are two types of recreation days to be evaluated, general and specialized. The general category includes those activities such as picnicking, camping, hiking, riding, cycling, fishing, and hunting. The special category includes any activities for which the opportunities are limited, for which a high degree of skill, knowledge, and appreciation by the user may be involved, or which may involve a large personal expense for the user. In the case of the Pigeon River, the specialized activity would consist of whitewater rafting, kayaking, and canoeing. Given the data available for recreational activities on nearby similar mountain rivers such as the Hiwassee, Nantahala, Ocoee, and Norris tailwaters (for fishing), the recreational activities projected for the Pigeon River were subdivided into the following activities: (1) commercial raft floating, (2) other watercraft (canoes, kayaks), (3) fishing, and (4) other general recreation.

Commercial Raft Floating

The existing data reveal that floating is increasing at the rate of 20 percent annually on the Ocoee and Hiwassee, while it has leveled off on the Nantahala at 133,000 annual visits. The Nantahala had experienced a similar growth rate until visitation reached 125,000 annually and began to level off. Statistics kept on these three streams reveal that approximately 60 percent of float use is by commercial rafting with an average cost to the participant of $21. For the Pigeon River, a use of 34,560 is projected for 1988 which is only 31 percent of the current average use on the Ocoee, Hiwassee, and Nantahala. A ratio of 50 percent is used for the proportion of commercial rafts on the Pigeon, which is 10 percent below the average for the other three streams. Finally, a figure of $20 is used for the expenditure, which is below the average cost of the other three streams. The direct benefit for 1988 is therefore calculated at 17,280 commercial raft trips which when multiplied by $20, equals $345,600. The floating use patterns are projected to increase at a growth rate of 19 percent, which is slightly below those experienced at the other streams, until a leveling off occurs above 110,000 visits.

Other Floating (other watercraft such as canoes and kayaks)

The use is calculated to be 50 percent of all floating. In order to arrive at a value, the Water Resources Council's Table VIII-3-3 was utilized for special recreation, of which whitewater canoeing and kayaking is an example. A total of 62 points was assigned out of a possible of 100. The breakdown was as follows:

a) Recreation experience:	10 out of 30
b) Availability of opportunity:	12 out of 18
c) Carrying capacity:	10 out of 14
d) Accessibility:	12 out of 18
e) Environmental quality:	18 out of 20

Table VIII-3-3—Guidelines for Assigning Points For Special Recreation

Criteria	Judgment factors				
(a) Recreation experience[1] Total points: 30	Heavy use or frequent crowding or other interference with use	Moderate use, other users evident and likely to interfere with use	Moderate use, some evidence of other users and occasional interference with use due to crowding	Usually little evidence of other users, rarely if ever crowded	Very low evidence of other users, never crowded
Point value:	0-4	5-10	11-16	17-23	24-30
(b) Availability of opportunity[2] Total points: 18	Several within 1 hr. travel time; a few within 30 min. travel time	Several within 1 hr. travel time; none within 30 min. travel time	One or two within 1 hr. travel time; none within 45 min. travel time	None within 1 hr. travel time	None within 2 hr. travel time
Point value:	0-3	4-6	7-10	11-14	15-18
(c) Carrying capacity[3] Total points: 14	Minimum facility development for public health and safety	Basic facilities to conduct activity(ies)	Adequate facilities to conduct without deterioration of the resource or activity experience	Optimum facilities to conduct activity at site potential	Ultimate facilities to achieve intent of selected alternative
Point value:	0-2	3-5	6-8	9-11	12-14
(d) Accessibility Total points: 18	Limited access by any means to site or within site	Fair access, poor quality roads to site; limited access within site	Fair access, fair road to site; fair access, good roads within site	Good access, good roads to site; fair access, good roads within site	Good access, high standard road to site; good access within site
Point value:	0-3	4-6	7-10	11-14	15-18
(e) Environmental quality Total points: 20	Low esthetic factors[5] exist that significantly lower quality[4]	Average esthetic quality; factors exist that lower quality to minor degree	Above average esthetic quality; any limiting factors can be reasonably rectified	High esthetic quality; no factors exist that lower quality	Outstanding esthetic quality; no factors exist that lower quality
Point value:	0-2	3-6	7-10	11-15	16-20

[1] Value for water-oriented activities should be adjusted if significant seasonal water level changes occur.
[2] Likelihood of success at fishing and hunting.
[3] Value should be adjusted for overuse.
[4] Major esthetic qualities to be considered include geology and topography, water, and vegetation.
[5] Factors to be considered to lowering quality include air and water pollution, pests, poor climate, and unsightly adjacent areas

The Council's Table VIII-3-1 was used to convert the points to dollar values. A rating of 62 point equates to a value of $11 in 1982 dollars. This was adjusted to the 1987 Consumer Price Index to a value of $12.94. Thus, the direct benefit for 1988 for this category is calculated by multiplying 17,280 visits times $12.94, which equals $223,603.

Table VIII-3-1—Conversion of Points to Dollar Values

Activity categories	Point values										
	0	10	20	30	40	50	60	70	80	90	100
General recreation (Points from Table VIII-3-2)	1.60	1.90	2.10	2.40	3.00	3.40	3.70	3.90	4.30	4.60	4.80
General fishing and hunting (Points from Table VIII-3-2)	2.30	2.60	2.80	3.10	3.40	3.70	4.10	4.30	4.60	4.70	4.80
Specialized fishing and hunting (Points from Table VIII-3-3)	11.20	11.50	11.70	12.00	12.30	13.50	14.70	15.60	16.80	18.00	19.00
Specialized recreation other than fishing and hunting (Points from Table VIII-3-3)	6.50	6.90	7.40	8.00	8.50	9.60	10.60	12.80	14.90	17.00	19.00

Note.—Adjust dollar value for subsequent years to reflect changes in the Consumer Price Index after July 1, 1982.

Fishing

The standard value utilized by government agencies for fishing visits is $17. Tennessee Wildlife Resource Agency (TWRA) officials interviewed projected an outstanding put-and-take fishery, similar to that of the Hiwassee, which would generate substantial use if the Pigeon River is cleaned up. A creel survey on the Hiwassee is presently underway by the TWRA; however, the most recent use data available is the survey TWRA performed in 1973-1975, which found use increasing to 26,653 visits in

1975. TWRA officials estimate that current use is larger. A creel survey performed by TVA during the past four years on a similar, though larger fishery at Norris tailwaters, f[illegible] the following use and expenditures:

	1982	1983	1984	1985	1986
USE	20,282	21,960	37,200	37,440	46,746
BENEFITS	$344,760	$373,320	$632,000	$636,480	$794,682

A conservative use figure for a put-and-take fishery on the Pigeon River for 1988 of 12,597 visits has been projected. This use is only 47 percent of the actual use surveyed 12 years ago on the Hiwassee. A growth rate of eight percent is projected. For 1988, the direct benefit is calculated by multiplying $17 times the projected use of 12,597, which equals $214,149.

Other Kinds of General Recreation

This category basically includes visits for such activities as sightseeing, hiking, picnicking, camping, and observing floaters.

The Water Resources Council's Table VIII-3-2 was utilized for assigning points for the general recreation (other than fishing) category for use on the Pigeon River. The category was ranked at 64 points out of a possible 100 points. The breakdown was as follows:

a) Recreation experience: 26 out of 30
b) Availability of opportunity: 5 out of 18
c) Carrying capacity: 6 out of 18
d) Accessibility: 11 out of 14
e) Environmental quality: 16 out of 20

Table VIII-3-2—Guidelines for Assigning Points For General Recreation

Criteria	Judgment factors				
(a) Recreation experience [1]	Two general activities [2]	Several general activities	Several general activities; one high quality value activity [3]	Several general activities; more than one high quality high activity	Numerous high quality value activities; some general activities
Total points: 30 Point value:	0-4	5-10	11-16	17-23	24-30
(b) Availability of opportunity [4]	Several within 1 hr. travel time, a few within 30 min. travel time	Several within 1 hr. travel time, none within 30 min. travel time	One or two within 1 hr. travel time; none within 45 min. travel time	None within 1 hr. travel time	None within 2 hr. travel time
Total points: 18 Point value:	0-3	4-6	7-10	11-14	15-18
(c) Carrying capacity [5]	Minimum facility development for public health and safety	Basic facilities to conduct activity(ies)	Adequate facilities to conduct without deterioration of the resource or activity experience	Optimum facilities to conduct activity at site potential	Ultimate facilities to achieve intent of selected alternative
Total points: 14 Point value:	0-2	3-5	6-8	9-11	12-14
(d) Accessibility	Limited access by any means to site or within site	Fair access, poor quality roads to site; limited access within site	Fair access, fair road to site; fair access, good roads within site	Good access, good roads to site; fair access, good roads within site	Good access, high standard road to site; good access within site
Total points: 18 Point value:	0-3	4-6	7-10	11-14	15-18
(e) Environmental quality	Low esthetic factors [6] exist that significantly lower quality [7]	Average esthetic quality; factors exist that lower quality to minor degree	Above average esthetic quality; any limiting factors can be reasonably rectified	High esthetic quality; no factors exist that quality	Outstanding esthetic quality; no factors exist that lower quality
Total points: 20 Point value:	0-2	3-6	7-10	11-15	16-20

[1] Value for water-oriented activities should be adjusted if significant seasonal water level changes occur.

[2] General activities include those that are common to the region and that are usually of normal quality. This includes picnicking, camping, hiking, riding, cycling, and fishing and hunting of normal quality

[3] High quality value activities include those that are not common to the region and/or Nation and that are usually of high quality.

[4] Likelihood of success at fishing and hunting.

[5] Value should be adjusted for overuse.

[6] Major esthetic qualities to be considered include geology and topography, water, and vegetation.

[7] Factors to be considered to lowering quality include air and water pollution, pests, poor climate, and unsightly adjacent areas.

The Council's Table VIII-3-1 was used to convert the points to dollar values. A rating of 64 points equates to a value of $3.80 in 1982 dollars. This was adjusted to the 1987 Consumer Price Index to a value of $4.47.

A survey of the U. S. Forest Service on recreational use of the Hiwassee River found that overall use increased from 1985 to 1986 by 20 percent to 115,748 visitors, with general recreation activities such as sightseeing, hiking, picnicking, camping, and other activities consisting of approximately 17,000 visitors. Whitewater rivers such as the Nantahala, Ocoee, and Hiwassee draw significant numbers of visitors coming only to observe floaters running rapids.

Given the proximity of the Great Smoky Mountains National Park which receives 11 million visitors per year, it is projected that a clean Pigeon River would attract a use figure in the range of 85 to 88 percent - of the present general, non-fishing recreation visits the Hiwassee receives. For 1988, the direct benefit is calculated by multiplying $4.47 times 15,115 visits to equal $67,564

Projected Benefits

Table 1 depicts the projected direct benefits and economic impact from recreational use of a clean Pigeon River for the years 1988 through — 1997. Direct benefits measure actual expenditures to be made, while economic impact measures the "rippling effect" or "multiplying effect" these direct expenditures have in a regional economy. For example, assume a visitor spends $20 for a commercial raft trip. The commercial outfitter may now take a portion of that $20 and buy some equipment at a local hardware store. The store manager then spends part of that income

Direct Benefits and Economic Impact From Projected Recreational Use of a Clean Pigeon River
for the Period 1988-1997.

Activity and Totals	1988 Use	1988 Direct Benefit	1989 Use	1989 Direct Benefit	1990 Use	1990 Direct Benefit	1991 Use	1991 Direct Benefit
Commercial raft floating	17,280	$345,600	20,736	$414,720	24,883	$497,660	29,860	$597,200
Other floating	17,280	223,603	20,736	268,324	24,883	321,986	29,860	386,386
Fishing	12,597	214,149	13,605	231,285	14,693	249,781	15,869	269,773
Other general recreation	15,115	67,564	16,325	72,973	17,630	78,806	19,041	85,113
Total direct benefits		850,916		987,302		1,148,233		1,338,474
Total impact on economy		3,403,664		3,949,208		4,592,932		5,353,896

1992 Use	1992 Direct Benefit	1993 Use	1993 Direct Benefit	1994 Use	1994 Direct Benefit	1995 Use	1995 Direct Benefit	1996 Use	1996 Direct Benefit	1997 Use	1997 Direct Benefit
35,832	$716,640	42,998	$859,960	51,598	$1,031,960	61,402	$1,228,040	73,068	$1,461,360	75,000	$1,500,000
35,832	463,666	42,998	556,394	51,598	667,678	61,402	794,542	73,068	945,500	75,000	970,500
17,115	291,346	18,509	314,653	19,990	339,830	21,589	367,013	23,316	396,372	25,182	428,094
20,564	91,921	22,210	99,279	23,986	107,217	25,905	115,795	27,977	125,057	30,215	135,061
	1,563,573		1,830,286		2,146,685		2,505,390		2,928,289		3,033,655
	6,254,292		7,321,144		8,586,740		10,021,560		11,713,156		12,134,620

Total benefits over next 10 years:	$18,332,803
Total impact on economy:	$73,331,212

Table 1

on groceries, etc. Economists usually assume a marginal propensity to consume of .75, which results in a multiplier of 4. Thus, a $20 direct expenditure in an area would eventually be multiplied by a factor of 4, producing an overall economic impact on the economy of $80.

For the period 1988 through 1997, the projected total direct benefits derived from recreational use of a clean Pigeon River are $18,332,803, which averages $1,833,280 per year. The total economic impact equals $73,331,212, which averages $7,333,121 per year. It should be noted that these figures are in 1987 dollars and do not account for any level of inflation projections. There are also three other important points which need to be emphasized. First, this analysis examines benefits and economic impacts for only recreational use of a clean Pigeon River. There are other studies underway which will examine the economic impact a clean Pigeon River would have regarding attracting new industries, increased agricultural development, and increased real estate values. The economic impact from these areas could be substantial and far outdistance the impact derived from recreational activities. As an example, the nearby Little Pigeon River is a very clean stream, though it is smaller than the Pigeon. The Little Pigeon, during the past 10 years, has experienced substantial real estate development consisting of dozens of expensive, high quality vacation resort homes. Also, property values along the Little Pigeon have soared. Given the acknowledged outstanding natural beauty surrounding the Pigeon River and its proximity to the Great Smoky Mountains National Park, it is possible that similar real estate development would occur on the Pigeon if its waters were restored to a clean state. This development alone would have a substantial multi-million dollar impact on the local economy.

The second point which needs to be emphasized is that this analysis calculates benefits and impacts from recreational users of the river only. A 1985 study by Walsh, Sanders, and Loomis, entitled Wild and Scenic River Economics: Recreation Use and Preservation Values, found that this approach greatly undervalues a river. They conducted a study to estimate the value of 11 proposed wild and scenic rivers in Colorado and found that recreational users accounted for only 19 percent of the total estimated value of the rivers.

In the case of the Pigeon River, there are people who would derive some benefit just knowing that the river was clean and usable again. Undoubtedly, there would be some measure of benefit and impact on the North Carolina section of the river.

There are also two very important assumptions made in this analysis which must be emphasized. First, it is assumed that a "clean" Pigeon River means a river which is suitable for recreational use. Second, while there would be substantial economic benefits and impact for recreation from a clean river under the current Walter's Dam discharge scheme, it is assumed that Walter's Dam would operate a discharge scheme on weekends favorable to early morning fishing use and mid-morning to afternoon floating use, similar to that of the Hiwassee, Nantahala, and Ocoee Rivers.

A Financial Analysis of Champion International Corporation's Ability to Provide for a Clean Pigeon River

The financial strength of Champion International Corporation is unquestionably strong. The company ranks among the country's top 100 industrial firms in sales, net earnings, and total assets. Among forest product companies, Champion comes in fourth place with annual sales in excess of $4 billion and assets of $6 billion. Over the last ten years (1977-1986), Champion has reported net earnings of $1.28 billion, invested $3.69 billion in plant assets and natural resources, and paid $621 million in dividends to shareholders (49 percent of total earnings). Champion rewarded its top executives $5,790,333 in total compensation for 1986. The corporation's Board of Directors also approved a contingent compensation plan consisting of 400,000 shares of common stock (current market value approximately $15.6 million) to be earned by senior management officials over the next five years. In 1984, the company purchased St. Regis Corporation for $1.1 billion.

The majority of Champion's product lines are in good shape, and the company has made a material reduction in its cost structure over the past two years. Experts are basically in agreement these factors are likely to result in a sharp rise in earnings per share of Champion common stock for 1987, and project stable earnings for the company over the next three to five years. Even Champion's stock has received *Value Line's* highest ranking for performance over the next 12 months.

The pollution of the Pigeon River is presently Champion's most serious environmental concern. Champion maintains that the Environmental Protection Agency would be creating undue financial hardship on the company if required to substantially improve water quality on the Pigeon

River. The company goes as far to say that, if not changed, such a standard would force them to abandon their Canton mill. Most would agree that the necessary clean-up of the Pigeon River will not be cheap. However, there is considerable disagreement over the actual cost of such an undertaking.

Champion's own estimates relative to the initial capital outlay range from \$25 million to \$204 million. The company's estimates for annual operating expenditures vary from a low of \$3 million to a \$27 million high. Apparently, no clear determination of cost for an effective clean-up project has been determined. However, for argument, assume that a capital investment of \$60 million and annual operating costs of \$6 million would allow for considerable progress toward meeting acceptable water quality standards. Based upon financial projections published in the May 1, 1987, edition of Value Line relative to the performance of Champion for the current year, the following analysis presents the effect such expenditures would have on Champion's financial position and results of operations for 1987.

Adjustment of Predicted Net Earnings for New Pollution Control Facilities at Canton Mill

Predicted net earnings	$250,000,000
Depreciation on pollution control equipment (1)	(3,000,000)
Annual operating costs	(6,000,000)
Interest on debt (2)	(5,100,000)
Tax expense reduction (3)	6,345,000
Predicted adjusted net earnings	$242,245,000
Percent reduction in net earnings	3.1
Predicted primary earnings per share	$2.65
Predicted adjusted primary earnings per share	$2.57

Notes:

(1) Depreciation is computed using a 20 year useful life with no salvage value.

(2) Interest on debt is computed assuming an 8.5 percent interest rate (Champion's 1986 average cost of unsecured debt) with 100 percent unsecured debt financing.

(3) Tax expense reduction is computed using an effective rate of 45 percent.

Effect on Financial Position

The effect on the company's financial position would be nominal. Working capital would be reduced by the debt service; however, favorable tax treatment over five years for pollution control facilities and the ability to deduct interest on the debt would considerably reduce income taxes payable. Such a reduction would substantially offset the effects of debt service on working capital. However, the debt to total capitalization ratio would increase slightly.

The financial projections for 1987 appear to be reasonable and are consistent with statements made by Champion executives in the company's 1986 Annual Report. The assumption that the entire project would be financed with long-term debt is somewhat unrealistic, however. Champion has stated in its 1986 Annual Report that it plans to spend between $425 and $450 million per year for the next few years on capital projects, and that the company presently anticipates that substantially all of its capital requirements for 1987 will be funded from internal sources. Also, as reported in the Asheville Citizen-Times, "Champion has announced it will spend $120 million over the next five years to reduce the coloration in the Pigeon River by 50 percent." (This is $30 million more than the amounts assumed in the preceding analysis.) These statements indicate that Champion is capable of expending the necessary funds to substantially improve the water quality of the Pigeon River, and considerable additional debt would not be necessary for compliance.

Champion also stated in its 1986 Annual Report that its capital program is focusing on very specific projects that will bring high rates of return. With capital budgets projected in excess of $1.3 billion over a three year period it is not unreasonable to expect Champion to invest in a project which, though not highly profitable to the company, benefits a substantial societal interest--clean water.

Financial Effect on the Canton Mill

Much has been said concerning the possibility that Champion, if forced to meet strict pollution control standards, would close the Canton mill thereby displacing thousands of workers and causing considerable economic hardship on Western North Carolina. Such drastic action on the part of Champion is not likely, however.

Champion has control of approximately one-third of the coated paper market, much of which is produced at its Canton mill. The closure of the mill would require Champion to make considerable capital expenditures to replace lost capacity if it hoped to maintain market share. Also, because of the environmental problems at the plant, a sale could take years to consummate. If not immediately sold, the idle plant would still generate fixed costs which the company would have to absorb. The fixed costs incurred from the addition of new plant and the support of idle plant could very easily exceed the reduction in variable cost a new facility would provide plus the cost of installing pollution control equipment in Canton. Such an effect would support the installation of pollution control equipment in Canton even if the installation caused the plant to report an overall accounting loss. The company obviously believes that future improvement of the Canton mill is more economically viable than construction of a new facility having already spent $48 million on an improved boiler system and having a commitment to spend an additional $220 million on improvements to its bleaching process. (It is not clear if the $120 million discussed earlier is included in the aforementioned $220 million. If so, such expenditures are likely to be made primarily for improving productivity and reducing costs, and any improvements in water quality would probably be only incidental in nature.)

Another concern of Champion is that large expenditures on pollution control facilities do not provide the company with significant returns on its investment. Canton and the Pigeon River have been the home of Champion's pulp and paper mill for 79 years. The river has been dark and polluted for this period while Champion and its stockholders have reaped significant returns from its Canton mill operation (1986 gross operating margin equaled $37.3 million). The traditional view that investment precedes return does not always apply. In the case of Champion's use of the Pigeon River, the return has already been received, but no significant investment in the river has yet to be made.

Concluding Remarks

Being one of the largest timber resource companies in the country, Champion knows the importance of natural resource conservation. Like the Pigeon River, without conservation the company would have died years ago. Champion International Corporation is financially capable of providing for a clean Pigeon River, continuing its 79 year history in the region, and meeting its goal of being among the top quarter of all U. S.

corporations in terms of profitability. But for each goal to be realized, Champion must make necessary changes in pollution control facilities at its Canton mill. Only then will society as a whole benefit from Champion's operations on the Pigeon River.

> "If change has a most valuable lesson to offer perhaps it is that we need not be victims of it if we can accept it as an opportunity to grow and achieve. In this sense, we believe the best companies are the ones with operating styles flexible enough to make necessary changes without compromising commitment to producing a quality product at a fair price."
>
> Champion International Corporation 1986 Annual Report

Mr. QUILLEN. It seems to me that with a corporate giant making money—and obviously it has. I hope they have made money. But making money at the expense of people who live along the river just doesn't seem right to me. I think that this hearing will pinpoint that situation as it really exists.

Again, I want to congratulate you. I'm not going to ask any questions, because I think your statements speak individually and have pinpointed the problem. I thank you very much.

Mr. CLEVENGER. Mr. Quillen, may I add that if water could run up hill, you would see the people of North Carolina here instead of the people of Tennessee.

Mr. QUILLEN. I think that's a very salient point. Thank you, Jerry.

Mr. NOWAK. Mr. Packard.

Mr. PACKARD. Other than cleaning up the river, what would you people in local government and local agencies like to see happen? How do you see a solution to the problem? What should happen? And simply cleaning up the river is not an inadequate answer. How do you do it?

Mr. CAMPBELL. Are you referring to what we are wanting done now. Is that what you're asking?

Mr. PACKARD. Yes.

Mr. CAMPBELL. Well, of course we need to have standards set sufficiently to make Champion quit discoloring the water, lower the temperature of the water as it enters the river, and also quit polluting the water with these pollutants that they put in it.

A second step would have to be—after the source is eliminated or curtailed to a severe degree—a cleanup effort if nature itself won't do it adequately over a short enough period of time.

Then there's going to have to be a cleanup of some type of the river itself, particularly behind Walters Dam, which is a dam that's owned by the Carolina Power & Light Co. near the State line. There's a lot of sediment there that undoubtedly is rich in dioxins.

Then on downstream you come to the Douglas Reservoir, which is one of the TVA lakes. There's bound to be sediment down there. I would think it would not be as severe that far down the river. But certainly, there's going to have to be a lot of testing to really make certain. But if we find sufficient dioxin down there, there's going to have to be a cleanup downstream.

Mr. PACKARD. Are these steps that you've just outlined being taken?

Mr. CAMPBELL. Nothing is being done except some testing at this stage. Champion has made a promise that they will consider certain steps to eliminate this. But as far as I know, nothing positive has been done yet. It's not in concrete. We have no agreement. It's just discussions, as I understand it.

Mr. PACKARD. Thank you, Mr. Chairman.

Mr. DAVIS. Can I respond to Mr. Packard's comment or question? We would suggest, Mr. Packard, that Champion could change this whole problem by just maybe going to brown paper production at Champion. In other words, the river is small. It is hard to keep from polluting it with a production of paper. But we have to have so many pounds of brown paper, which you could make at Champion at Canton. They could move their process, if they really wanted to do something quickly and alleviate the problem.

There's a lot of good solutions. We're hoping the State of Tennessee won't take the agreement permit, in other words. We think that it could be cleaned up quicker completely without the negotiation process. But there are several quick solutions, if they would do it.

Mr. CAMPBELL. I might add, Congressman Packard, that we're here only—it's my understanding that in 1970, upon formation, the EPA was honor-bound to clean up all natural resources. We only ask that they do their job.

It's that simple. If EPA would follow the guidelines that were mandated to them, then the Pigeon River would be clean as of now.

Mr. NOWAK. Thank you.

Let me thank the panel for the submission of their testimony.

We will keep this record open as we try to fill in the gaps, looking at some of the broader impacts and, in fact, studying the international situation. In some respects, at least in one country, Sweden, they seem to have taken steps to have substantial impacts very, very soon on their industrial output.

We will be back in touch with you as we develop any other solutions. Certainly we want to follow, and have you follow, the permit process very, very carefully, and invest that kind of time and energy not only within the State of Tennessee, but within the whole EPA process as that moves along.

We note that it was really the Congress that moved this dioxin testing nationally. Perhaps if that hadn't been done, we still would not have discovered what was in your Pigeon River and coming over to you in Tennessee. We will try now, once again, to move, as I say, the permit process to make some difference in the water quality that's coming in.

There's another deeper question that is going to be very vexing. That, of course, is what to do—now that many areas throughout the country, Pigeon River included—in relationship to the sediment problem, and the toxics that are in there, and the length that is being discovered of their life cycle. It's enormous compared to what was previously thought. We're also very cognizant of that additional step that we're now looking at.

Of course, there's no state of the art. What do you do with heavy sediment on the bottom. If you try to dredge and remove it, you're going to stir up additional amounts of bottom toxics that are now stabilized to some degree. It's very difficult to cap a stream. That solution may work in some other areas, but I don't know in the Pigeon River if that's going to be an ideal solution. But there may be new technologies coming on board.

Of course, you want to play a role in keeping alert to those new technologies as progress is made initially in stopping the amount of pollutants coming in originally into your stream.

There's an awful lot of unanswered questions that we have tried to focus our resources on. As you know, it becomes very difficult to bring everybody together, all the players that are out there. It is especially difficult when you've got these differences in interstate areas where one is perhaps polluting a stream and another is living with some of the downstream effects of that. Hopefully, we will find a solution.

We want to thank you for your contribution here today. Thank you very much.

[The prepared statements of Mayor Wilson, Mr. Davis, Mr. Clevenger, Mr. Moore, and Mr. Campbell follow:]

CITY OF NEWPORT,
Newport, TN, July 13, 1988.

To: The Subcommittee on Water Resources of the Public Works and Transportation Committee of the U.S. House of Representatives.

Honorable Committee Members:

Thank you for allowing me to stand before you today representing the citizens of Newport, Tennessee. I am here to speak on their behalf concerning the Dead Pigeon River which flows through the states of North Carolina and Tennessee including our city of Newport located in Cocke County. The Pigeon River is dead because of the serious pollution which has been allowed to happen over the last eighty (80) years due to industry along the river. The major industry which is continuing to pollute the river is Champion Paper Company located in Canton, North Carolina. Champion Paper Company leaders have expressed to us in the last couple of years that they were taking steps to clean the river, but we are not seeing positive results.

Our city of Newport, which is located in beautiful Cocke County consists of the finest people in the world, who, like people everywhere in America need to feel their self-worth by being able to have a legitimate job and live in an area with as pristine a river flowing through it as the people have who live above the Champion Paper Company. Our economy has suffered tremendously over the years, and a clean Pigeon River will certainly turn this suffering around by creating an environment for additional jobs in manufacturing and tourism as well as allowing people to live along the Pigeon River.

The Champion Paper Company should follow the Federal Clean Water Act of 1972 which has cleaned other rivers such as Maine's Androscoggin River. We are thankful that the State of Tennessee has high water quality standards and has supported our local unified effort in trying to get Champion Paper Company to do what it should be doing anyway.

When the health and welfare of our people are threatened by a stream of polluted water flowing through our city, then we are seriously negligent of our duties as stewards of the land and water resources that God has given us to care for while we are here on this earth. It is most assuredly our duty to leave to posterity a clean, healthy Pigeon River!

Thank you for listening to the testimony of one who sincerely represents her people!

Sincerely,

JEANNE Y. WILSON.

STATEMENT OF RONNIE DAVIS, STATE REPRESENTATIVE, DISTRICT 11 OF TENNESSEE

I am Ronnie Davis, State Representative for District 11 of Tennessee, which includes all of Cocke County. My district takes in the total length of the Big Pigeon River in Tennessee, from which it crosses the state's boundary with North Carolina and eventually flows into the French Broad River just east of Douglas Lake a short distance from Newport, the Cocke County seat.

The immediate question before this committee regards the presence of dioxin in the waters and in the fish of the Pigeon River. But to those of us who have lived with the river's pollution for generations, the problem goes far beyond even the danger of this deadly poison.

Over thirty years ago, as a young boy in Cocke County, I was told the pollution of the Pigeon River came from many sources. Now we know the river's condition results from the discharges of Champion International's paper mill in Canton, North Carolina. The river has been polluted by Champion for 80 years—since 1908.

More than 60 miles of the stream are severely polluted by discharges from Champion's paper mill. The mill dumps large amounts of solid chemicals and colorants into the stream daily. In addition, the discharges heat the river's water to a level considerably warmer than the 29 degrees centigrade which denotes the highest possible temperature for a healthy stream. The river above the paper mill is classified as Class A, the highest possible rating; but below the mill the river is classified as Class C, unfit for human contact.

Champion's continued pollution of the Pigeon River has resulted in a first-rate trout stream being turned into a murky, smelly, foamy stream devoid of 90 percent of the fish found upstream from the mill. Plankton and algae growth have seriously impacted the river and have virtually destroyed the food chain of this mountain stream, resulting in a biosphere being taken over by pollution-tolerant organisms common to the seriously degraded water.

It is truly a shame that many thousands of people have been denied the beauty, enjoyment, and economic benfits the Pigeon River could offer. Almost the total length of the river, if clean, could become a beautiful recreational area which would attract many visitors, particularly in view of the stream's nearness to Interstate 40. Experts say the river, if cleaned up, could produce fish in abundance within a three-year period. Instead, millions of travelers taking one of the nation's most scenic drives, the Knoxville-Asheville section of Interstate 40, now view the river in its polluted condition.

Over the years numerous attempts to influence cleanup of the Pigeon River met with little success, but in 1983 the formation of the Dead Pigeon River Council brought a promise of real progress, despite Champion's continuing pollution. The river and those who would enjoy it have been deprived too long, and the people and the state agencies of Tennessee—and our honorable Congressman Quillen—are determined that a change is going to be made.

The Environmental Protection Agency has suspended the State of North Carolina's right to issue a water quality permit to Champion, citing the state's failure to force Champion to conform with the Clean Water Act of 1972. The Champion company has very recently lost its appeal of this ruling in the U.S. District Court.

The expectations of Champion are more than reasonable. The corporation is merely being asked to begin meeting the same standards for discharging wastewater that companies in Tennessee and elsewhere observe. No payment for previous years of damage is being requested. Legal decisions should not be required to bring about such an action by Champion. Good corporate citizenship and an appreciation of the natural beauty of Western North Carolina and East Tennessee should be sufficient, if the company will act in good faith.

The conversion of the Pigeon into a clear, beautiful stream will help promote economic growth for the general East Tennessee and Western North Carolina area. A cleanup of the river and restoration to its natural state of beauty will make the area a more desirable environment for new businesses, industries, and residents.

I call upon this committee to see that the needed changes are made. It is plainly evident that the Pigeon must be cleaned up, whether voluntarily or through legal processes. The cleanup can be simplified and further ill will avoided if this committee will take a determined stand and if Champion International will recognize its responsibility for compliance with the Clean Water Act. I appeal to this committee and to Champion to act quickly to clean up the river, and in doing so to demonstrate a spirit of respect for the environment and of corporate and governmental responsibility.

JERRY CLEVENGER, COUNTY CHAIRMAN, COCKE COUNTY, TN

Mr. Chairman, honorable members of the committee: The deplorable condition of the Pigeon River is of grave concern to the people of the East Tennessee Valley and environmentalists everywhere—we need your help.

We are beginning to have serious doubts about the integrity of the Environmental Protection Agency--enough doubts that we suggest a name change would be in order. Perhaps the name should be the ECA—the Environmental Compromise Agency would be more suitable.

According to Webster the word protection means just that. The EPA has a mandate to protect the environment, not to compromise the beauty and cleanliness of any waterway including the Pigeon River.

Such a compromise has been made with Champion Paper Company concerning the aforementioned river. You are protecting no one when dangerous levels of dioxin and other toxins are allowed under the agreement with Champion, they are and will continue to be dumped into the river. We contend that such an agreement will only partially clean up a once beautiful river and will seriously compromise the integrity and enforcement power of the EPA.

Let me give you a couple of examples. What if Congress would simply stand by idlely and let the FBI be allowed to compromise with dangerous criminals and felons. Certainly Congress would not stand still if the Treasury Department, the Federal Reserve and other Federal economical agencies had the license to compromise away the economic stability of our great country.

So, how can we stand by and let the EPA compromise away one of our most precious commodities, clean, fresh water.

Since 1984 East Tennessee as well as other parts of the country have felt th devastating effects of a serious drought. The lack of fresh water resources have taken a serious toll on our farmers and homeowners. Perhaps this has made us much more conscious of our water resources and has made us cherish them even more.

We have learned that the Champion Corporation enjoys a healthy, if not overwhelming financial position. We contend that a total cleanup of the river would neither harm that standing or force Champion into a desperate situation.

Several experts contend and we believe that allowing the continuous dumping of dioxin into the Pigeon River will constitute a death sentence for people who live along or nearby the river.

Much attention has been paid to the plight of the river by local, regional and national media. They have gone as far as to dub a community in our county that rests along the river as "widowville", because of the unusually high rate of cancer related deaths in that community. We ask this committee as most certainly the EPA, how can you put a monetary value on a human life. We believe that the EPA should not be an arbitrary agent between those who are desirious of a clean river and an industry that is worried only about a small, and by their own financial reports, minute expenditure of monies. Moreover we suggest that the EPA get back to the task of cleaning up the environment, instead of making deals that will only half clean up the river—we think in their mandate upon formation was to protect our environment not partially protect it, but totally protect our natural resources.

Certainly a federally named arbitrator could have effected the same agreement with Champion Corporation that EPA did without the tremendous expenditure of taxpayers money, that has resulted in an expensive smoke screen and assault on the intelligence of the people in our community.

In closing, we only ask that this committee take a long look into the actions of the EPA in regards to the clean up of the Pigeon River.

As county chairman of Cocke County I take this opportunity to invite members of this committee to visit our community and see first hand the situation that has been forced on us by the wheeling-dealing and compromise solution between Champion Corporation and the EPA.

This reminds me of a motto that we have all seen and read, "I have compromised no values to gain this office and will compromise no values to keep it". Perhaps members in authority at EPA should read and heed this moral message.

Thank you very much for your attention and in advance for any help you may give us in the future.

Statement: Cocke County Executive.
Comments: Pigeon River.
Committee: House Public Works and Transportation.
Subcommittee: Water Resource.

Mr. Chairman and distinguished members of the Water Resource Subcommittee, I am Charles Lewis Moore and I am honored to be the County Executive/Judge of Cocke County, Tennessee. I was honored to serve our country for 10 years as a Congressional Liaison for the Department of Defense and I retired as a full Colonel in 1982. Cocke County, Tennessee is located on Interstate 40 approximately 50 miles east of Knoxville and our county boundary is adjacent to Madison and Haywood Counties of North Carolina.

We appreciate the opportunity to appear before this distinguished committee in order to discuss an issue that is extremely important to our region which is the population of the Pigeon River. The Pigeon River originates in the State of North Carolina as a crystal clear and uncontaminated waterway that can be enjoyed for recreational activities such as trout fishing which requires pure and clean water. But, the Pigeon River's continuous waterflow is interrupted by the Champion International Paper Mill located in Canton, North Carolina which routes most of the water through it's plants operation. The discharge of water after it has been used in the paper mill is routed back into the river bed in a black, foamy, filthy, dirty, smelly, and polluted nuisance which eventually flows approximately 28 miles within the State boundary of Tennessee through one of the most beautiful areas in our county of approximately 29,000 residents. In addition, the waterflow of the Pigeon River joins the French Broad River in our county and empties into the Douglas Lake Reservoir and eventually flows downstream to the location in which the City of Knoxville obtains its water supply for both residential and commercial use. I would also like to inform the distinguished Subcommittee that the Pigeon River flows through the heart of the City of Newport which is the only major city within our county.

As a result of the pollution of the river by Champion, we are unable to use the river to construct any homes, agricultural purposes, recreational activities, or for drinking water. Therefore, we must extend our water facilities six miles over a mountain to the French Broad River in order to obtain water to be used in our county. As a result the county taxpayers and consumers of the water must bear a portion of the additional expense of the extension of the water facilities over a mountain rather than obtain it from a more centrally located water supply as the Pigeon River.

We cannot be found guilty of not having patience, for we have been very tolerable of this circumstance for over 80 lengthy years. Champion International Paper Corporation has continually promised since the early 1900's to correct this terrible situation, but to no avail.

We are extremely concerned about the health of our citizens and the endangered species within the river and the effect the pollution is having upon them. Just recently, gentlemen, we accidentally discovered that the Pigeon River contained dioxin. Scientific evidence has linked this chemical to causing cancer among other health threats. We feel that the Environmental Protection Agency (EPA) which was established in 1970 has failed in its goal to protect the citizens of this region miserably by not taking the necessary steps to ensure that the environment is protected. We have an extremely high rate of cancer among our citizens, especially the senior citizens which live near the river and the fear and anxiety that lingers over the heads of our people due to the dioxins and pollutants in the waterway is intolerable. At the present time, the EPA has made very few attempts to provide a briefing or to bring me up to date on any of the ongoing research concerning the health hazards our citizens are confronted with or to provide me with any type of written documentation as to the dangers which are present within the Pigeon River. When we have questioned the governmental agency concerning the situation of the river, we have received answers such as, "I do not know" or "I am unable to disclose any information at this time." When we have quizzed the EPA as to the possibility of additional environmental dangers which exist within the river, we continue to receive the same answer that states the governmental agency does not know. In addition, we have received information that the EPA does not have the proper laboratory facilities to give us any type of indication of the additonal dangers that could continue to linger over our citizens. And, I want to take this opportunity to reiterate that it has been proven that the fish which have been tested are a danger to both humans and animals. The environmental specialists or technicians that will speak at a later time on the agenda will provide each of you gentlemen with a greater insight as to how the dioxins that are in the river pose a threat to the citizens and the animals in our area.

Our county has the unwanted distinction of having the highest average unemployment rate in the State of Tennessee for the last two years. And our county was either first or second in this category the two previous years. In fact, the average annual income of the citizens of Cocke County is approximately $6,800.00. We feel that the Pigeon River could help to alleviate this problem by bringing in millions of dollars in revenue for agricultural and recreational purposes. In fact, this estimated loss in revenues can be substantiated by a study conducted by Walters State Community College located in Morristown, Tennessee.

As you are all quite aware, our county is facing the worst drought on record. Therefore, water has become a precious commodity which is becoming more scarce as the drought continues to plague our great nation. But, we cannot use the water from the Pigeon River for commercial consumption, agricultural needs, and the various recreational activities that an environmentally clean waterway could provide our citizens.

Therefore, we are very disappointed with the lack of action taken by the EPA. As the Chief Elected Official of Cocke County, it is my feeling that the EPA has continuously shown an attitude toward our county and our region that they cannot provide substantial information that leaves me with the impression that they really do not care.

I appreciate the fact that Congress had the foresite to enact laws and regulations to provide a means of protection for the environment. But, it is amazing to me that the EPA was established to provide a means to protect the environment and has the provisions for clean water and air. We feel that as far as protecting the environment of this area, the EPA rates a zero. At this time, the citizens of my county feel quite uneasy with the EPA.

It is my belief that the technology exists and is available to initiate a clean-up project by Champion to make the Pigeon River a more beautiful and environmentally safe waterway. The financial records of Champion International indicate that they are a corporate giant which would be able to make the necessary expenditures to clean up the river. Cocke County is a small county which does not possess the financial means to fight a corporate giant such as Champion. As a result we depend upon gentlemen such as you, the Congress, and other distinct sources that are vitally interested in the environment. We feel that the expenditures could and should be used to restructure their current procedure rather than to dump into a river that is so vital to thousands of people downstream, but it appears that Champion is continuing to discharge more pollutants into the once beautiful Pigeon River.

We appreciate your concern for clean water and air and we feel that this is the foundation in which the EPA was created. It is hard for me to believe that in this day and age we have such a menace within our society.

I thank you Mr. Chairman and distinguished subcommittee members for allowing me to take this opportunity to speak to you on behalf of Cocke County, Tennessee concerning the pollution of the Pigeon River.

REMARKS TO THE HOUSE PUBLIC WORKS COMMITTEE, WATER RESOURCES SUBCOMMITTEE

Mr. Chairman: I am Roy Campbell, Jr., City Attorney for Newport, Tennessee. I am also a member of the Industrial Development Board of Cocke County, Tennessee, and presently serve as attorney for that Board. I have lived in Newport all of my life with the exception of my Army time and my years in the University of Tennessee at Knoxville. My mother, who is 91 years of age, is from Western North Carolina and taught school before 1920 for 1 year as a grade school teacher in Canton, North Carolina, the home of Champion International. Champion was polluting the air and water back at that time as they are now, and were also promising to clean up their pollution which they have never done.

We are disturbed and upset over the permit issued to Champion International by E.P.A. without any consultation with our local people even though our people were responsible for bringing the matter to the attention of the authorities and were pressing for some action on the pollution by Champion. The matter had apparently been resolved by the Courts favorably to E.P.A. and then suddenly, a deal was struck by the politicians favorable to Champion without any consultation with the concerned parties. In short and in language we can all understand, this arrangement stinks.

The Pigeon River flows directly through the downtown section of Newport. The back door of the City Hall opens on the river. The water is black and at time stinks to high heaven. It has a white foam that reminds you of soap suds. It isn't safe to swim in the water, you certainly can't drink it, and nothing but rough fish, carp and the like, can survive in it. From the City of Newport eastwardly to the North Carolina state line, there has been practically no commercial development of any kind for nearly a century because of the pollution of this stream. Now we learn about dioxin in the water which is an additional problem.

We live in a beautiful section of the United States. We adjoin the Great Smoky Mountains National Park and the North Carolina state line. About 40,000 acres of our county is in the Cherokee National Forest. We don't have a lot of level land here. Most of our land is mountains and hilly so we are dependent to a certain extent on tourism as a form of economic development.

The blight of this river, caused by one poor corporate citizen with total disregard for the rights and health of others who are less fortunate should be stopped. E.P.A. has it in its power to do something about this.

The Pigeon River empties into the French Broad River which forms Douglas Reservoir in the Tennessee Valley system. The City of Dandridge takes its water from Douglas Reservoir and as the water passes through Douglas Dam, it becomes the Tennessee River and the City of Knoxville takes its municipal water from the Tennessee River. The City of Sevierville, Tennessee, is planning to get an additional supply of water out of Douglas Lake. Douglas Lake is a beautiful area for recreation and fishing and many people eat the fish taken from Douglas Lake. We feel that this threat of dioxin needs to be examined in great detail and the permit issued to Champion needs to be reviewed and possible steps taken by the Federal Government to insure the health and safety of individuals downstream from Champion who are in jeopardy.

Champion has never acted in good faith about this matter. For years now they have been promising to clean up this mess but never have taken the first step. We insist that this permit, which would only do half enough, even if Champion were to act in good faith, should be reviewed. What this permit would do is to prolong the matter for another decade or generation and in view of the dioxin threat, this situation should not be tolerated by E.P.A.

We call on the federal government to come to the rescue of the people in East Tennessee who deserve better treatment than this.

Mr. NOWAK. Our next panel will look at and testify to some of the national environmental concerns. These organizations have been involved in this process on a national basis.

We would now like to invite Mr. Nelson Ross from the Izaak Walton League to come to the table; Ms. Ellen Silbergeld, Environmental Defense Fund; from Greenpeace, Renate Kroesa; and Ms. Carol Van Strum. Is she still in attendance here?

Mr. Ross, if you would like to start the panel off. We will go right down the list.

Again, I will state for the record that we will have your statements included in the record, including all of the charts and the somewhat complex, yet necessary, calculation sheets that have been submitted in your papers.

TESTIMONY OF NELSON ROSS, PRESIDENT, MOSSY CREEK CHAPTER, IZAAK WALTON LEAGUE; ELLEN SILBERGELD, DIRECTOR OF THE TOXIC CHEMICALS PROGRAM, ENVIRONMENTAL DEFENSE FUND; RENATE KROESA, INTERNATIONAL PULP AND PAPER DIRECTOR, GREENPEACE, AND CAROL VAN STRUM, HISTORIAN

Mr. ROSS. Thank you, Mr. Chairman, and members of the committee.

My name is Nelson Ross. I'm from Jefferson City, TN. I'm president of the Mossy Creek Chapter of the Izaak Walton League of America. I am also a member of the Bill Keiffer Lakeway Chapter in Morristown and will be representing that chapter also in the comments today.

Our chapter members had conducted the study that was eluded to earlier by Mr. Moore from Cocke County as a service to the members of local citizenry regarding the problem of the Pigeon River.

We appreciate this opportunity to present our views regarding the problem of dioxin in the Pigeon River before the committee. We would also like to take this opportunity to express our deepest feeling of appreciation for Congressman Quillen for not only work that he's done in the past, but his ongoing work in representing the vital interests of his constituents in Tennessee on this issue.

Because of the national interest in water quality, and even the international interest in water quality, we feel that this concern has a much broader interest than just that in the western part of North Carolina and east Tennessee. We feel that, in fact, it has national and international significance as a precedent setting situation.

I have here—and would like to present to the committee—a video clip that was done by WLOS TV in Asheville reporting on certain segments of this flap and the pollution of the Pigeon River. It contains a brief segment that has Mr. Oliver Blackwell, Vice President of Operations and spokesman for Champion International at the Canton mill, denying that the mill pollutes the Pigeon River. In fact, in this segment he is saying the color of our effluent is not toxic.

Mr. NOWAK. Without objection. We will have that available.

Mr. ROSS. Thank you, sir.

We believe that while Mr. Blackwell was making these statements, Champion knew that the mill was polluting the river with dioxin. Yet there was no reference at that time by Mr. Blackwell to dioxin as a toxic element going into the river. This belief is based on information that came to our attention from documents released by the environmental group Greenpeace in November 1987.

In fact, after this press release that we'd had in east Tennessee relative to the presence of dioxin in the river, Mr. Blackwell indicated, as a spokesman for the company, that Champion had, in fact, known of dioxin being in the river, but that it was of a very minute and trace amount, too small for public concern. Incidently, we feel that there is a correlation between the color and dioxin contamination in that river.

As an active conservationist in Tennessee, I would like to discuss briefly the primary reason why we think that Mr. Quillen's concern on the dioxin in the river is very relevant. We feel that a brief examination of Champion International's behavior and tactics throughout the current permitting process will show how we may have arrived at this current situation.

This giant multibillion corporation with soaring profits employs more people than reside in Cocke County, TN. They own 23 times more land than is found in Cocke County. They've continually used this power to hold the people of western North Carolina hostage and effect favorable interpretation of the Clean Water Act in the water quality permitting process. This is evident in the very long, but successful battle that EPA had with them in court, and also with North Carolina in court, to take this water quality permitting process from the State.

How has this been done? How have they accomplished this?

First, they have gotten Governor Martin and other officials of North Carolina from various agencies there to publicly agree that the river is not polluted and that the only problem with the river is one of color. In fact, Governor Martin has been quoted as saying, "It's not an environmental problem. It's not much of a visual problem either." Further he stated that the color standard in Tennessee is "one that they arbitrarily set in Tennessee. It's a way of trying to hurt business over here."

We think that's an incredible statement for a Governor of another State to make in this situation. We think you would only make that with outstanding influence from Champion International to do so.

Second, Champion's threat to close the mill if the original draft permit requiring 50 color units at the pipe were enforced has so brutalized the citizens of western North Carolina with the fear of losing their jobs that you can find few people, if any, to speak out for cleaning up the river in North Carolina. For that matter, few citizens in western North Carolina will criticize Champion, period. This is quite evident when one considers the freedom with which Oliver Blackwell, as he speaks for Champion, can speak on almost any subject with seemingly impunity from bad public reaction in that part of the country.

Last year he unleashed a scathing attack on his most staunch supporters at a civic club meeting. He said if they didn't get serious about expressing their support of Champion to EPA, he quoted in there that "There is nothing unique about Canton that forces us to make it here," talking about the paper. He went on to say that, "Without this consensus, you'll see a local economy trying to survive on service industries rather than being a robust manufacturing-based region." In that same speech he said "I am afraid any permit with any color number in it will not stop these so-called broad-based citizen action groups," and get this, "the politicians who listen to them and a news media that is hooked on controversy from complaining about our operation."

At other times Mr. Blackwell, speaking for Champion, has stated that he would eat the fish from the river. He said that even after dioxin had been reported to be in the fish. He has claimed that only trace amounts of dioxin were in the river, and they pose no public health threat. He has accused others of being major polluters of the river. The only thing that Champion puts in the river of concern is the color, and "color is not toxic."

Finally, in spite of the fact that numerous studies have been done over the years on the Pigeon River, each one showing that it's severely polluted, and many of them done by North Carolina agencies, Champion hired a firm to "study" the river. The firm reported that Champion's discharge had "no appreciable adverse effect on aquatic life in the stream."

Dick DiForio, Vice-President for Environmental Affairs, and spokesman for Champion when he was speaking for them, had earlier publicly denied that Champion was responsible for the foam in the river. He called this study that they had done a bench mark study by which all the other studies could be measured and judged.

Third, after getting North Carolina's support, and subjugating the citizens through fear, Champion and the people supporting them seemed to be able to do almost anything they wanted to in North Carolina with impunity. For example: during the height of the permitting process, when there were a lot of tempers flaring, Champion sent a ton of rainbow trout to the legislature of North Carolina and sponsored a huge fish fry for them in Raleigh. This seemed to be little enough reward for folks that had been so good to them in the past. Mr. Chairman, it seems that some folks will do anything for a mess of fish.

Workers representing Champion had elderly citizens sign form letters to EPA before serving a Christmas dinner to them. It's a meals-on-wheels program. A school teacher had a serious problem with some students who had posted art work expressing the need to clean up the river. WLOS TV in Asheville was threatened by boycott for featuring Dick Mullinix, founder of the Dead Pigeon River Council, as the man of the week. Mr. Mullinix had to leave the State in the middle of the night during this time due to death threats and threats on his property.

Perhaps the crowning blow by Champion, seemingly in an attempt to control the entire water quality permitting process, was the hiring of a consulting firm to organize a giant public relations campaign prior to the first public hearing sponsored by EPA in Asheville on the draft permit. This campaign, using dominos and the slogan don't let Champion fall, made a travesty of the hearing in Asheville.

During the time when long lines of Champion supporters extolled the fact that the plant was very important to the area, and also that if it closed there would be a devastation there, there were people that would bring giant jugs of dominos. They must have been three feet tall. They would carry them up over their head. They would place them with a big thug right at the feet of Bruce Barrett who was EPA's hearing officer.

During this time, there was no one who spoke at that hearing who was in opposition of Champion International's position on the permit. We had people call us and say that the reason they didn't speak was because they felt that they would be threatened by the situation in western North Carolina if they did speak.

Consider these facts further: the consultants organized some 550 volunteers in Champion's "Save a Town" center, making an estimated 54,000 phone calls. This same firm, operating from Champion owned headquarters, generated some 234,000 mailings soliciting support for Champion's cause to be sent to EPA.

They chartered a bus and loaded it with supporters to deliver those things to the EPA Headquarters in Atlanta. They unfurled a large banner down there and had a demonstration at the EPA's offices in Atlanta when they took them down. It's astounding that Champion International would go to such lengths seemingly to grind their heels into the faces of the citizens of Tennessee.

This on top of the fact that after the Asheville hearing, they brought 4½ miles of busses into the State of Tennessee. The busses carried over 2,000 supporters for Champion, all wearing yellow hats. Incidently, the busses were led to the Tennessee State line by none other than Governor Martin as a cheerleader for the caravan.

In conclusion: it's little wonder why the citizens of Tennessee are bewildered. They wonder why they were not informed about the potential dangers of dioxin contamination in the Pigeon River before learning about it through the documents provided by Greenpeace in November 1987, especially when these documents show that both the EPA and the paper industry knew of the danger for some 2 years.

We think that Champion's extraordinary public relations effort, spending hundreds of thousands of dollars, may have had an effect on how EPA dealt with the dioxin in the Pigeon River. We think that Champion has the financial and technical ability to correct the problem.

Mr. Chairman, our plea is that this committee would take whatever action is necessary to ensure that the citizens of both North Carolina and Tennessee are protected from dioxin (2,3,7,8-TCDD) in the EPA water permitting process for the Canton mill in Canton, North Carolina.

Thank you for your consideration. I would be happy to answer questions on any of these matters further.

Incidently, I would like to submit for the record an article in the Mountaineer that headlines "If Mill Closes, Kiss $500 Million Goodby." That depicts the closing of that mill to the equivalent to an atom bomb blast in western North Carolina, completely devastating the region. With that, there are a number of political cartoons that are linked to that. There are other documents here, clippings from the paper that support statements made in my testimony.

Thank you.

Mr. **Nowak**. Thank you very much.

We will accept those newspaper records in and as part of the record.

[News articles referred to follow:]

[From the Mountaineer, Nov. 9, 1987]

BLACKWELL: MILL CRITICS MAY FORCE IT TO LEAVE

(By Greg Cook)

In his strongest remarks yet, Oliver Blackwell, vice president and operations manager at Champion International Corp., lashed out at the company's critics Friday, saying the pulp and paper mill in Canton could be forced out of the county because of opposition forces.

Blackwell also said many of those who have supported the corporation haven't taken Champion's battle with the U.S. Environmental Protection Agency seriously enough, and that a genuine consensus of support is needed for the mill to remain.

"In time, we can make the grades of paper we need for the envelope business on paper machines elsewhere," Blackwell said at a meeting of the Waynesville Rotary Club. "It is a good business for Champion, and we'll keep it." But, he said, "There is nothing unique about Canton that forces us to make it here.

"The same thing is true for cut size. In fact, we already make most of our cut-sized paper elsewhere."

Blackwell said, "Without this consensus you'll see a smaller mill in Canton. Without this consensus, you'll see less people working at the Canton mill. Without this consensus, you'll see our operation in Waynesville as an extruding operation instead of what it is today. Without this consensus, you'll see a local economy trying to survive on service industries rather than being a robust manufacturing-based region."

Blackwell said Champion could shift its pulp and paper production away from Haywood County and shut down the cut-size operation in Waynesville, leaving only an extruder operation.

Champion's Waynesville plant currently has two functions: extruder line operations and cut-size operations. The company currently has two extruder lines in use at the facility but the installation of a third has been approved by company officials. Champion doesn't expect any new jobs to be created because of the new line.

"We're going to add an extruder in Waynesville this year because our quality in the board business demands it," Blackwell said. "But don't take that as a positive signal."

Spending money for an additional extruder line, Blackwell said, doesn't mean the corporation can spend enough to comply with the 50-color-unit requirement contained in EPA's draft wastewater discharge permit. Champion officials have continuously maintained that the Canton mill cannot continue to operate unless EPA softens the color-unit standard.

Blackwell said Champion has spent almost $2 million researching the color issue.

"We have had the best scientific minds available working on color," he said. "We know more about color than anyone. We are the experts, but nobody wants to believe us."

Blackwell aimed much of his criticism at three groups.

"Well, if you assume as I am now ready to assume, that the harping, the complaining, the grandstanding and the bitching by all of those who claim to know more about this than we do is never going to stop, then why should we risk the money to modernize the mill," he said. "I am afraid any permit with any color number in it will not stop these so-called broad-based citizens action groups, the politicians who listen to them and a news media that is hooked on controversy from complaining about our operation."

Blackwell returned last Wednesday from a meeting at Champion International Corp.'s headquarters in Stamford, Conn. He said the corporation had decided to spend $650 million in capital projects in the coming year, and the meeting was a chance for plant managers to obtain a share of those monies.

Blackwell, however, said the Canton mill needs broader ground support in order to spend those dollars.

"The money we need is sitting there ready to be spent, but it is not going to be spent until we know we are going to be allowed to remain for the long haul."

[From the Mountaineer, May 11, 1987]

IF MILL CLOSES, KISS $500 MILLION GOODBYE

(By Richard Shumate)

Shutting down Champion International's Canton paper mill could be the economic equivalent of nuclear devastation for Haywood County.

It would take at least a half billion dollars in spending money out of Haywood County and Western North Carolina every year.

How much is a half billion dollars? Roughly the amount Haywood County government would spend for all services in the next 33 years, if spending remained at current levels.

Since company founder Peter Thomson built his first pulp mill on the banks of Pigeon River in the early years of this century, the fortunes of Champion and Haywood have become tightly entwined—so much so that a pullout now, which the company says is possible if the EPA won't bend its proposed color regulations, would clearly do considerable damage, not only to the economy but also to a whole way of life.

To illustrate that point, consider another North Carolina city, Winston-Salem. Few towns are as identified with one industry as Winston-Salem is with R.J. Reynolds Tobacco. Yet, while less than 10 percent of Forsyth County's workforce works for Reynolds, nearly 11 percent of Haywood's works for Champion.

And consider the following:

In 1986, Champion paid $100.8 million in wages and benefits. Area economists estimate each of those dollars turns over annually at least five times, which means a Champion pullout would strip more than a half billion actual dollars from the Western North Carolina economy.

Records for 1986 show that Champion paid $642,000 in taxes to the town of Canton—more than 22 percent of the town's $2.9 million budget and 57 percent of its tax revenue.

Champion is county government's largest taxpayer. In 1986, Champion paid county government nearly $760,000 in taxes, about 5 percent of the county's entire $15.3 million budget and 11.4 percent of its tax revenue.

The company is the largest retail customer Carolina Power and Light has in the county, buying $11 million in power in 1986.

A Champion pullout would affect rail service, since Champion is one of Southern Railway's largest WNC customers. Earlier this year, when Southern closed a line from Murphy to Dillsboro, a switch in Champion operations which decreased the need for service on the line was cited as a factor by one company official.

The company is also a major contributor to county civic and charitable programs, including the United Way, Robertson Memorial YMCA (named for Reuben B. Robertson, the man most closely identified with Champion's rapid early growth) and the county school system. Champion also provided part of the funding for the new hospital and library.

Champion, the state's largest employer west of Charlotte, employs about 2,300 people in its plants in Canton and Waynesville. If those jobs weren't there, county unemployment, which last year stood at 6.7 percent, would jump to about 17 percent—not including other people who would lose their jobs as the decline in Champion dollars rippled through the economy.

"It would be a crisis," said Bob Croft, director of the Haywood County Economic Development Commission.

People who have studied the economy say there would be nothing to replace Champion or those 2,300 jobs.

"We just don't have that many industries available, and it would be virtually impossible to recover one of that size," said Ed Israel, executive director of Western North Carolina Tomorrow, a regional economic development group. Israel said studies show industries have by and large stopped their migration to the Deep South, going instead to the Southwest and to foreign countries.

The county also has a lack of suitable land and services that have long ago convinced development officials to abandon the search for Champion-like industry in favor of smaller firms.

"There's just no way to replace it," said Croft.

If Champion went, next to go would likely be the number of small businesses that supply Champion, some 300 vendors, according to Croft.

"They would be virtually out of business," he said. "It would affect a whale of a lot of vendors."

And as displaced Champion workers ran out of money to spend, retail businesses, and workers in that sector, would be the next to face difficulty—discount stores, small shops, barbers, butchers, supermarkets, movie theaters, video stores and virtually anything and everything else that depends on customers.

"People are worried," said Melody Jenkins, executive director of the Haywood County Chamber of Commerce. "There are a lot of people not directly involved with Champion beginning to realize this would affect them."

The impact on retail sales would slosh over from Canton and Waynesville, which has about half of the county retail trade, and to Asheville, the region's largest shopping center.

As the ripple continued, it would hit financial institutions, as former Champion employees found themselves hard-pressed to make car, boat, credit card and house payments.

"It would have a devastating impact—not only on financial institutions and others who extend credit, but on everybody who sells things as well," said Donald Eudy, Waynesville city executive for First Union National Bank.

"We very concerned about it," said Larry Ammons, executive vice president of Haywood Savings and Loan Association, which specializes in long-term real estate loans. "There's no question in my mind it would have an impact on the real estate market."

He said the association saw people getting behind in their house payments a few years ago when another paper-related facility closed in Jackson County. Nobody lost their house back then, but Ammons said "that was on a much smaller scale."

A Champion closure would also affect tourism, which in recent years has become an increasingly important part of the county's economy.

According to Israel, "tourists tend to migrate to retail bases."

But, Ms. Jenkins said, although lack of shopping could have an adverse impact, surveys show most people come to the area for the mountains and the wilderness.

"Our retail industry is really not large enough to be a draw," she said.

There's also likely to be an effect on agriculture in the county, although what that impact would be remains to be seen.

Haywood County has many parttime farmers—people who farm out of love for the land or for an income supplement. Many of them subsidize farming operations with pay checks from Champion.

Steve West, the county's agricultural Extension director, said displaced Champion workers could turn to farming to replace their income.

"We could wind up producing more," he said. But he doubts high-paying Champion jobs could be replaced in most places, although success or failure would depend a great deal on a farmer's debt structure and management skills.

"As a rule, I think it would be difficult—especially the first few years," West said. "The farm picture right now is not really bright."

REGIONAL IMPACT

Nor would the effect of a Champion closure be limited to Haywood County.

The company is one of the largest landowners in the Southeast, with timber operations in both Carolinas, Eastern Tennessee and Georgia. Wood harvested is chipped for use in the Canton mill at a plant in Newberry, S.C.

The company, which used nearly $61 million in timber last year, also buys part of that supply from outside vendors, and some of that is chipped at independent plants on Jonathan Creek and in Burke County, according to Charles Curtis, community relations director for the Canton mill.

The mill is Champion's only producer of liquid packaging board, with approximately 30 percent of the milk and juice cartons in the United States coming from board produced in Canton, coated at Champion's Waynesville conversion facility and shaped into cartons at Dairy-Pak plants in five states, including one in Athens, Ga.

Oliver Blackwell, director of operations at the mill, said a shutdown of the mill could cause a short-term milk carton shortage in the Eastern United States until other producers could catch up with the demand.

Those other Champion plants, including the Waynesville facility employing 300, "would have other options" if the mill closed, Curtis said. The question is whether it would be feasible to ship in paper and board for conversion at the Waynesville plant to keep it open.

"You just have to look at the economics," Curtis said.

Since many Champion workers live in surrounding counties, the impact of a mill closing would be regionally damaging.

"I think you'll see a domino effect that will spread out into the region," Israel said.

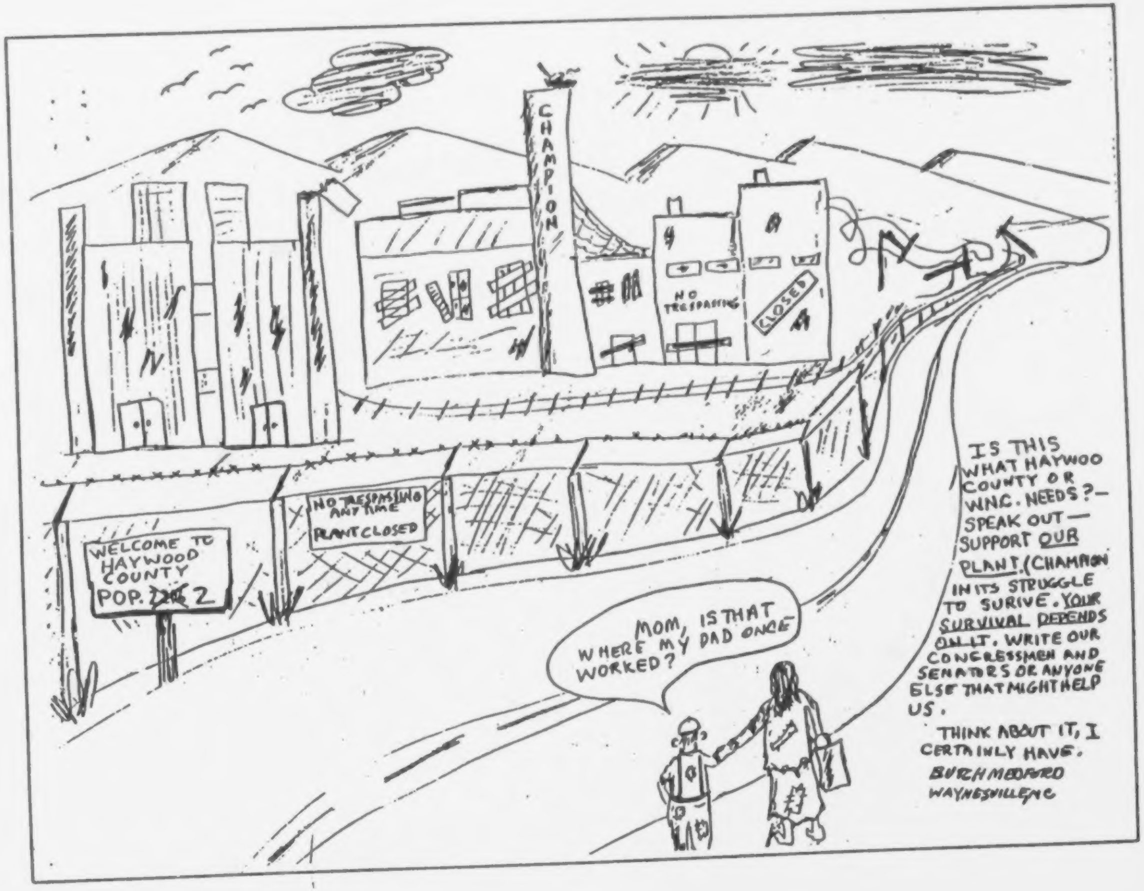
Especially hard hit could be Buncombe County. David Brown, an economist and the chancellor at the University of North Carolina at Asheville which recently sponsored an economic summit in the Asheville marketplace, said about 80 percent of supplies purchased by industrial firms in Hollywood and Jackson counties are brought in Asheville.

The city is also a major destination for shopping and leisure activities for Haywood residents.

But despite the bleak economic picture a Champion shutdown could cause, Brown said there would also be a loss of something almost as important—a heritage of jobs passed from generation to generation, a steady supply of good pay in a region where it's often lacking and a reason for young people to stay in the area.

"It represents not only jobs but a way of life for a significant part of the families of Western North Carolina," Brown said. "It s loss would be something from which it would take a long time to recover."

The MOUNTAINEER, Waynesville, N.C., Friday, February 20, 1987—5A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THINK ABOUT IT, I
CERTAINLY HAVE.

BURCH MEDFORD
WAYNESVILLE, NC

[From the Mountaineer, Feb. 9, 1987]

TIPPING THE HAT FOR BEGINNINGS

When the county's need for sewers was finally put down on paper, it looked downright intimidating. Where were we going to get $30 million or more to pay for it? Nobody had the answer to that one.

Governmental units have begun whittling away at the problem. Maggie Valley, county government. Clyde, Junaluska Sanitary District—all are doing their bit. They deserve more than nodding respect for it, because this is not inexpensive work.

Maggie Valley is moving ahead with a sewerage system that will permit that area to continue its economic growth.

And so are Clyde and Junaluska Sanitary District. Business development is the worry in Maggie; residential development for bedroom communities are concerns in Clyde and the sanitary district.

County government, with a modest beginning, will have the biggest job in the long run. The commissioners have shown a commendable willingness to face that.

They have agreed to lay a sewer through Fairway Hills, connecting the Kmart shopping center to a Waynesville outfall line at Lake Junaluska through the heart of one of the country's most densely populated areas. They have shown an interest in the Junaluska sewers and in helping solve the problem at Haynes Hill.

Those are not major projects for county government, but they do represent a beginning. And we have to start somewhere. Too much is at stake to let the need for sewerage slide.

The commissioners—and policymaking bodies in Maggie, Clyde and Junaluska Sanitary District—rate a tip of our collective hat for recognizing that and doing something about it.

CANTON TOWN BOARD CONDEMNS WLOS' MULLINIX BROADCAST

(By Doris Burrell)

A grass-roots protest among Champion International Corp. employees and local citizens over Asheville WLOS-TV's Dec. 4 selection of Dick Mullinix as "Person of the Week" has acquired an official capacity.

Canton's governing board passed a resolution Tuesday expressing "extreme displeasure" with the station for choosing Mullinix, a Haywood County resident and one of the founders of the Pigeon River Action Group.

The resolution notes that WLOS is probably the No. 1 source of news and public information for Western North Carolina and therefore "able to exert tremendous influence over public sentiment and opinion," and that "such positions of power and influence demand that a great deal of sensitivity and prudence be exercised in reporting and editorializing."

The resolution also notes that the station generally does meet and surpass the heavy public service responsibility it carries for accurate, timely and fair television broadcasting, but questioned its choice of Mullinix, head of the Pigeon River Action Group, "an individual who holds and pursues with apparent singlemindedness the goal of forcing Champion International's Canton Mill to dramatically lighten the color of its water discharges to the Pigeon River without regard to the fact that the required color-reduction technology does not exist."

The resolution said the board does not question the personal motives and values Mullinix may hold, "but we do, however, vigorously debate the wisdom of WLOS in its decision to confer person-of-the-week honors on such a controversial person as Mr. Mullinix at a time when public sentiment and opinion within Western North Carolina and East Tennessee could well be in the critical 'swing' factor in determining whether EPA will grant Champion a water discharge permit with attainable color standards."

The resolution concludes by stating that naming Mullinix as person-of-the-week is dubious, particularly at such a sensitive time in a decision-making process which, in the end, will determine whether Champion stays in Western North Carolina along with its 2,300 employees, its annual $100 million payroll, its $20 million in purchases of raw materials and all the other benefits Champion International brings to Western North Carolina's economy.

In other business, Alderman Ted Woodruff was elected mayor pro tem. Woodruff, who polled the most votes in the last election, took over from Alderman Robert Phillips, who is presently serving.

The town also passed a resolution of intent to annex 10.2 acres behind Ken Wilson Ford near Buckeye Cove. The property is owned by Wilson. A public hearing has been scheduled for 5:30 p.m. Dec. 23 to extend services.

The town exercised an option to purchase the Slaughter property at Locust street and Pisgah Drive for $40,000 with the intent to remove the house and cut away the high bank.

AIRING STIRS FORMATION OF LOCAL CITIZENS GROUP

(By Doris Burrell)

Two Canton men reacting to WLOS-TV's choice of Dick Mullinix as its "Person of the Week" on Friday have rallied some 2,000 people who not only have signed a petition in protest against the station, but have formed a "Concerned Citizens for the Future of Haywood County."

Bruce Holcombe and Mike Israel, both Champion International Corp. employees, say they are not representing Smoky Mountain Local 507 of the United Paper Workers International Union. "We are just a lot of people who are tired of these little groups who represent maybe a 100 who are trying to put the life and future of our young people in Haywood County at stake," said Holcombe.

Said Israel, "This is going to grow into a real community effort, I believe."

Both men said they have contacted a number of people who advertise with WLOS, and that most are considering withdrawing their ads.

Israel said about 1,500 signatures were from Champion employees; the remainder were by residents in the community.

[From the Asheville Citizen-Times, May 17, 1987]

CLEAN-WATER SIGNS SPUR CANTON FLAP

(By Mark Barrett)

CANTON.—Rebecca Allen used the controversy over Champion International to teach her sixth-grade students at Meadowbrook Elementary School about debating issues in a democracy.

But she says that there students learned the wrong lesson when Charles McConnell, Haywood County superintendent of schools, tore down Allen's signs at the school advocating clean water.

"They called me into the office on the intercom, and when I left the room I said, 'Maybe this isn't a democracy after all.'" Allen said Tuesday morning. "When we came back, (McConnell) took the signs down."

McConnell said he acted because, "I was afraid that some folks were going to come to the shool and make an effort to tear them down. . . . There was some potential for disruption of the school."

The U.S. Environmental Protection Agency had scheduled a hearing Thursday in Canton to hear comments on its efforts to force Champion to reduce the color content of the water it discharges into the Pigeon River from its giant paper mill here. Champion says meeting the EPA's standards would be so expensive it would go out of business.

Allen said the 8½-inch by 11-inch signs bore slogans like, "Don't muddy the water," and, "Don't cloud the issue."

McConnell said that after some parents saw the posters at a PTA meeting Monday night, he was even afraid that violence might erupt during an open house at the school Tuesday and asked a county sheriff's deputy to the school as a safeguard.

"I am sure that most of Canton disagrees with that. Now how tolerant they are, I have no idea," McConnell said. "When you're looking at the loss of 2,100 jobs in a community, people's feelings are pretty close to the surface. People are very anxious, very nervous.

"We don't want to get into the business of censorship or trying to tell people what to think just because they work for us. I am just concerned about safety," McConnell said.

But Allen charged that McConnell's concerns were simply political.

"Personally, I feel like what I said went against what he felt," she said. "No one asked what we might be doing in the classroom in regards to that, if it might be educationally sound. It just went against the prevailing political view."

Allen said she feels that Champion can clean up its discharge into the Pigeon and stay in business, but said she has not tried to indoctrinate her students. "I didn't feel like they were getting all the sides.

"The day that I put up the signs, I said, 'Listen kids, if we lived in Russia I couldn't do this. But because we live in America, I can go against public opinion and I can stand up for what I believe,' " Allen said.

"I feel very wronged."

[From The Mountaineer, July 1, 1987]

MILL FOOTS TROUT BILL

(By Ben Anderson)

Many members of the N.C. General Assembly who went to bed with full stomachs Tuesday night did so at least partly because of the largess of Champion International.

When the western delegation of the General Assembly threw its annual shindig for the entire legislature Tuesday in Raleigh, legislators were hooked on 2,000 pounds of rainbow trout that Champion purchased from a Henderson County firm. Champion's tab for the trout came to more than $2,000, although mountain legislators chipped in to pay the expense of frying the trout.

Charles "Skeeter" Curtis, community relations director at Champion's Canton mill, said the company bought the trout because "our local elected officials asked us to. We felt like being a good corporate citizen, it was the proper thing to do."

Curtis said there was nothing unseemly about Champion's footing the bill for the trout, which was provided last year by a supplier that has since gone out of business.

"With the drought last year, most (trout) growers were hit hard," Curtis said. "When the western delegation said it wanted to do the same type of thing this year, we said we'll be happy to help secure the fish." He said the party was "nothing any different than what's been done in the past."

[From the Mountaineer, July 6, 1987]

MONEY BETTER SPENT CLEANING PIGEON

To the editor:

In response to the tribute paid to Champion International in an item by Ben Anderson in your July 1 issue for sending $2,000 worth of trout for a dinner to please the state legislature in Raleigh, it would be better if this money went toward cleaning up the Pigeon River and restocking it with trout that we could ALL enjoy.

We have grown weary of the worn-out phrase "good corporate citizen" always attributed to Champion. How can a company brag about being a good corporate citizen when, down through the years, they have done untold millions of dollars in damage to the environment and the people in the surrounding country—and, all the while, making a tremendous profit to the company officials and stockholders in Stanford, Conn., and around the world?

Champion and the state officials would be better citizen if they would cooperate with E.P.A., clean up the river and replace the fish they have killed.

Let's let up on the "good corporate citizen" approach and get some action on the disgraceful condition of the Pigeon River. That would appear less fishy than sending trout to Raleigh.

Sincerely,

DICK MULLINIX,
Pigeon River Action Group.

Members of the Dead Pigeon River Council recently asked Cooke Countians for questions they would like to ask Champion International Corporation about the Pigeon River. Twelve of those questions were submitted in writing to Champion Vice-President of Operations Oliver Blackwell, who responded to them in Newport on Wednesday. Below are those questions and Blackwell's answers.

Q: Does Champion ever ship pulp in any form from the Canton mill?

A: "The answer is: No, we do not ship pulp manufactured at Canton to others. The Canton mill does not produce enough pulp to satisfy the needs of the paper machines at our location."

Q: Does Champion receive wood chips by rail or truck that are shipped in from outside the immediate area?

A: "We purchase chips from the most economical source. We didn't really see why this question was asked since it isn't relevant to the Pigeon River water quality issue, but I'll be happy to discuss the source of chips with anyone who would like to do so."

Q: Why can't Champion cut production of pulp to meet color standards?

A: "This is one of the questions asked by others and also one that was specifically asked by the EPA as they asked for the seven alternatives. Our answer to that is a matter of record, and the cost to increase the purchase of pulp at the Canton mill is economically prohibitive."

Q: Why can't Champion have pulp shipped to the Canton mill from the new state-of-the-art pulp mill in Michigan?

A: "This answer is the same as (question number) three. Pulp shipped or produced in our Michigan plant is market pulp and we at Canton would not get it free. So it would be the same as if we bought it on the open market."

Q: How much de-foaming chemical does the Canton mill use daily?

A: "We manufacture food board at the Canton mill, so everything, including defoamers, must be FDA-approved. To answer the question, it is so little—it's less than three ten-thousandths of one percent—that it's practically non-existent."

Q: Does the effluent from Champion's Canton mill pollute the Pigeon River?

A: "That question is kind of loaded, and it can't be answered with a 'yes' or 'no,' a simple yes or no answer.

"What is the definition of pollution? Is it anything that mankind puts back into a river that wasn't already there naturally?

"The government, through the Clean Water Act, permits wastewater discharges into rivers within certain requirements and limitations. The Pigeon river has a pulp and paper mill on it. And there are five municipalities discharging ultimately into the river. The agricultural run-off is significant. All of the drainage from Haywood County, in Western North Carolina, ultimately finds its way into the Pigeon River. And all of these conditions will not go away.

"We have a permit that we are operating under, and we meet all of the conditions of those permits. The one exception to that existing permit is the color issue; and had that not occurred, we would not be here today. But I want to emphasize that we have met or exceeded all of the permit requirements and continue to do so."

Q: Did the Canton mill recently break all production records by producing 1,800 tons of paper in one day?

A: "Yes, but during that day we met all of our treated wastewater permit limitations and the production from our paper mill on any one given day would have little or no bearing on our wastewater discharge."

Q: Why did Champion wait until they were sued by the state of Tennessee, EPA, and the Pigeon River Action Group to announce significant plans to improve the plant in order to clean up the river?

A: "Champion did not wait until any agency or group of people brought pressure to bear before we took positive action. We've been working diligently for the last 30 years to improve our water treatments in addition to maintaining this operation at a cost in excess of $20 million a year. It costs us $20 million a year to operate all this equipment and we have over 70 people working full time to do that. And we recognize that's a responsibility we have, it's a cost of doing business and we've always said that we're expecting to do more.

"Champion has worked diligently over the years, as technology emerged, to improve the river, and, as a matter of fact in answer to this question, a waste treatment plant—one of the premier plants in the industry today—has been in place long before any of these legal actions started that were referred to in this question."

Q: What responsibility does Champion have for the pollution of Walters Lake, specifically the vast amounts of solids that have settled to the bottom?

A: "We are removing 95 percent of the solids, we're removing fly-ash, we're removing lime and hauling it to the landfill. And many, many years ago, prior to 1960, all of that went into the river and it did accumulate into Walters Lake.

"There's no evidence that our current suspended solids in the effluent are creating a significant accumulation in the solids in the river. We are removing, and have removed for years not, these solids and (are) putting them into the landfill."

Q: Why should Champion's promise be believed now after so many years of broken promises?

A: "I personally don't know what promise was made that was broken that prompted that question."

Q: Has Champion deliberately allowed the Canton mill to become obsolete?

A: "The Canton Champion plant is not obsolete. Our problem is the cost to meet the environmental requirements, which is now $20 million a year, and it continues to increase and it increases to the level that the Canton mill cannot remain competitive long-term. And that's our biggest problem, is to maintain the competitiveness of that mill in that market, and it's impossible to do that as our costs continue to rise."

[From the Mountaineer, July 3, 1987]

CHAMPION CONTRACTS FOR COMPREHENSIVE PIGEON RIVER STUDY

(By Ben Anderson)

A Maryland-based firm is launching a study for Champion International Corp. that is intended to yield comprehensive data on the physical and biologic condition of the Pigeon River.

The firm, EA Engineering and Science Technology Inc., will survey the river from above Champion's pulp and paper mill in Canton to Newport, Tenn., nearly 60 river miles downstream from the mill. EA has done analyses for Champion in the past, but has not undertaken such a comprehensive study.

"The problem we've had is various studies have been done for different segments of the river," said Dr. Gerald Lauer, who will direct the new study."It was sort of like comparing apples and oranges."

In recent years the Tennessee Valley Authority and the states of North Carolina and Tennessee have all done Pigeon River analyses of some sort. North Carolina has rated the biologic condition and water quality of various sections of the river, and several surveys of fish populations have been done.

"But nobody has really done a synoptic study of the entire river," Lauer said. "We'll be looking at pretty much everything."

A report issued in July 1986 by the N.C. Division of Environmental Management listed an eight-mile segment of the river below the mill as "degraded" because of color, solids and biochemical oxygen demand. Lauer said his firm, too, will analyze the river's overall water quality, examining such components as dissolved oxygen pH levels and algae growth.

"To some extent we'll need to look at the river in light of changes in it," Lauer said. "The next question will be why is the river the way it is—good, bad or indifferent."

He said that "very likely the river will be segmented from above the mill to the reservoir (Walters Lake), and then to Newport. How much further it will be segmented, I don't know. It's still too early to compartmentalize."

EA staff people visited the area in June to do preliminary site preparation along the river. Lauer said most of the field work, which will include sampling stations at various points along the river, will be done during a three-week period this month. The laboratory analyses should take about two months, he said.

Oliver Blackwell, vice president and operations manager for the Canton mill, said the river study will be useful even though it likely will not be completed by Sept. 16—the latest date the U.S. Environmental Protection Agency can hold rescheduled public hearings on the mill's draft wastewater discharge permit.

The hearings, which were to have been held May 14 and 16, still have not been rescheduled by EPA. The agency said it postponed the hearings because it needed more time to review technical and economic data submitted by Champion in late April.

"We believe that, in any event, we need to know the real condition of the river," Blackwell said. "We believe that it will serve the needs of all interested parties to have available a scientifically based, definitive study.

"Over a long period of time, this study and that study have been done by different groups, but there's been no way to put it into one study. I don't know how many (studies) we've had at different times, under different conditions, with different objectives."

He said that after the survey is completed, the data will be shared with EPA and then with the public.

But he added, "We're not doing this because of any requests from EPA." He said the survey "further demonstrates Champion's commitment to the environment."

Blackwell termed the study "a very expensive project," but said he didn't know how much it would cost.

Mr. NOWAK. Before we take individual questions, let us have the other witnesses on the panel.

We will hear now from Ellen Silbergeld. Is that correct?

Ms. SILBERGELD. Silbergeld. Thank you, sir.

We're pleased to present testimony before you on the subject of dioxin/furan production on the chlorine-based bleaching of wood pulp in the paper industry. You have been right to focus in detail upon a local problem, but as you have noted, sir, it is a national and international issue.

Since 1984, the Environmental Defense Fund has been involved in a proceeding under the Toxic Substances Control Act to obtain actions from the EPA to reduce ongoing inputs of highly toxic and persistent halogenated dibenzodioxins and dibenzofurans from industrial, combustion, and other sources. At the present time, we are engaged in litigation with respect to those portions of our petition which were not granted by EPA.

One of our major concerns, which we share with you, is the chlorine bleaching process widely used in pulpmaking. In fact, we have an EPA. Congress established the EPA to deal with questions just like this, to resolve issues between States, especially when a natural resource like a river crosses State lines.

I am Dr. Ellen Silbergeld, Director of the Toxic Chemicals Program at EDF. My testimony will be concerned with an evaluation of the risks associated with the production of dioxins and furans in pulpmaking.

Let me give you some background as to my involvement with this issue. In addition to my position with EDF, I serve on the Executive Committee of the Science Advisory Board of the Environmental Protection Agency and on the Board on Environmental Sciences and Toxicology of the National Research Council. In these positions, I have been requested to serve as an expert on matters relating to dioxin and furans by EPA and by the National Research Council. I am currently a member of the NRC Committee on Dioxin.

In addition, I hold adjunct faculty positions with the Medical School at the University of Maryland and the John Hopkins Medical School. My research activities concern the mechanisms of action of dioxin on nerve and muscle.

Now we framed our testimony, sir, around the incontestible fact that Americans are currently being exposed to dioxins and furans from a number of ongoing and historic sources. As you note, remediation of this will be extremely difficult.

I presented in my testimony a compendium of data on concentrations of dioxins and furans in the fat and breast milk fat of Americans and persons in other industrialized countries around the world. The average concentration of dioxin in U.S. residents right now is approximately 6.5 parts per trillion in fat.

The issue of concern to Congress in this hearing must be: what is the contribution of the generation and release of dioxins and furans by bleached kraft papermaking to this ongoing burden of exposure? Of course, to reach your conclusion, you must consider the overall toxicologic and public health significance of this exposure.

We have calculated for you the likely exposure on a chronic basis, that is, what you would take in from all sources which would be required to produce these levels inside humans. That's included in our testimony. I'll be glad to go through that if you wish. The conclusion is that the average American must be encountering almost 1 pg/kg/day of 2,3,7,8-TCDD, and 6 pg to 40 pg of the total burden of toxic dioxin and furan isomers in order to have levels as high as these being measured in the fat and breast milk fat of the U.S. population.

Now what is the significance of this level of exposure? We can consider that in the context of peer-reviewed, scientifically based risk assessments that we have. Two well-established health effects of the dioxins and their chemical cousins, the furans, have been of concern in assessing risk: carcinogenicity and reproductive toxicity. In addition, these chemicals also impact the immune system, skeletal muscle, hormone function, skin, liver, kidney, and heart.

Well-conducted studies performed by Dow Chemical and by the U.S. Government have established the carcinogenicity of dioxins and certain furans in laboratory animals. Using EPA's peer-reviewed and published procedures for assessing the risks of chemical carcinogens, and the data from the Dow chemical study, the daily intake of TCCD which would be associated with a one-in-a-million excess cancer risk has been calculated by EPA to be 6.4 femtogram, one-thousandth of a picogram, per kilogram, per day, for a lifetime of exposure.

Looking at the reproductive toxicity of dioxin, New York State and others have concluded that an acceptable daily intake of TCDD which would be likely to prevent detectable reproductive toxicity is 1 pg/kg/day. Now these are very low numbers. But they're not biologically absurd.

Unfortunately, EPA seems to find these numbers disquieting. Over the past half year, the Agency has engaged in an attempt to foist off several revised risk assessments for dioxin, one which would downgrade the risks of human exposure by tenfold to twentyfold. It is asserted by some parties at interest that the EPA has, in fact, effectively downgraded dioxin risks for all intents and purposes. This is not the case.

Until there is complete peer review and a completed process of public comment, the conclusion of EPA's 1985 risk assessment stands. That is, as we discuss this issue today, sir—despite what you may have heard this morning—in July, 1988, the quantitative risk assessment calculation which guides regulation and enforcement in this country is still this: our best upper bound estimate of the consequences of a lifetime exposure to an intake greater than 6.4 fg/kg/day is likely to result in an excess incidence of cancer greater than one in a million.

Now EPA has circulated two attempts at revising this risk assessment exhaustively reviewed by industry, academia, public interest, and other scientists in 1985. As I point out in my testimony, those proposed revisions—the first one did not survive scientific review, in which I participated. The second one has only begun that process. Some have described the second one as a ludicrous attempt. Do not be distracted, therefore, by EPA's attempts to lower the river rather than to raise the bridge.

As discussed above, we've estimated that an intake of about 0.8 picograms, nearly 1 pg/kg/day of dioxin would be required right now to cause the measured body burdens that we're finding in the U.S. population right now. That's more than 100 times the intake calculated by EPA in 1985 to be associated with the one-in-a-million excess cancer risk. It bumps right into the acceptable daily intake for reproductive toxicity.

If you add in all the dioxin and furan isomers of concern, the current intake rises to as much as 41 pg/kg/day, or over 6,000 times the intake level associated with the one-in-a-million excess cancer risk, and 40 times the acceptable level calculated for preventing reproductive toxicity.

Can we conclude that chlorine-based pulp processes are an important source of exposure, and hence, risk? It is our opinion that this source is, in fact, critical. It requires regulation by EPA not only in the Pigeon River but, in fact, throughout the country.

This is based upon the amount of dioxins and furans produced by this source, the ways in which people come into contact with the dioxins and furans from this source, the particular propensity for widespread dispersion of dioxins and furans from this source, and their ability to be bio-concentrated by tens of thousandfold factors in fish tissue.

Moreover, you should consider that controls on this source can be accomplished without unacceptable economic or technological dislocations, despite the threats of industry. As you will hear from others, steps are being taken in other countries to effect interim product substitutions and technology replacement which will result in control on this source without disrupting the paper industry.

In addition, the chlorination of pulp in bleaching results in the formation of over 100 small molecular weight byproducts which are preferentially accumulated in fat and thus protected from environmental degradation. Now most of these haven't been identified, but testing of effluents from pulpmaking processes shows that they are highly toxic to aquatic life. Thus actions to reduce or prevent formation and release of dioxins and furans will also reduce or prevent the generation of this, as yet, only partially studied problem, which is likely to be of major proportions.

The human health risk, which is the focus of my testimony, potentially concerns workers, users of bleached paper products, nearby residents, and others who may come into contact with the eventual disposition of contaminated wastes and disposed products.

The industry asserts that an investigation of the risk of products shows that consumer contact with its products will not result in measurable risk. A technical bulletin put out by NCASI on coffee filters, published in May, 1988, has a calculation of likely exposures and risks. It is asserted that the resultant risk is between zero and one-in-a-million.

Unfortunately, this isn't the case. As we've included in our testimony, using NCASI's own data and exposure assumptions, the estimated risk is really on the order of five in a million. Moreover, as yet unquantified is the presence of other highly chlorinated dioxins and furans in addition to the 2,3,7,8-isomers, which were the only ones quantitated in the NCASI study.

Really, what this document says is not quibbling over the exact risk calculation, sir. But it reveals that the industry approach is to isolate sources of exposure product-by-product, circumstance-by-circumstance, rather than to consider the cumulative effect of its practices upon human exposure and environmental contamination. We're not exposed to dioxins and furans in paper solely as coffee drinkers. Dioxins and furans produced by kraft bleaching don't end up solely in coffee filters.

There are other consumer products which give rise to concern as to exposure including paper towels, uncoated paper plates, tissue paper, and the use of paper pulp in hygienic products for babies and women. The data developed by NCASI on the ease with which dioxins and furans migrate from the paper matrix are extremely worrying. Coffee making represents an almost ideal simulation of laboratory chromatographic extraction—the application of a hot solute containing oils to a thin paper surface containing dioxins and furans.

However, we can consider scenarios of consumer product use which would also be likely to facilitate migration of dioxins and furans from paper into food: for instance, using paper towels to cook greasy foods and to degrease them; or through skin, for instance, using tissues and paper towels with solvents such as fingernail polish remover or furniture strippers. Coffee drinkers, and the rest of us, will inevitably encounter dioxins and furans from bleached paper in a multitude of proximate sources, not solely coffee filters.

The generation and release of dioxins and furans from bleaching do not solely impact upon the product. This is the major justification for getting EPA to use congressional powers under TSCA to intervene at the production level. Otherwise, we're going to see a series of steps which will merely transfer rather than reduce the risks of human and ecological exposure. By this process of transfer, we will condemn our Nation to the gradual loss of recreational and other fishing uses of water bodies—which has already happened—with no assurance that once lost we know how to reclaim these resources, as you pointed out.

Dioxins and furans produced in the bleaching process are distributed throughout materials and compartments downstream from the addition of chlorine. The relative distribution will depend upon process-specific operations and waste management techniques. But overall yield will not be affected. The major focus has been placed upon the distribution of these toxins into the final product, and into wastewater discharge. Rightly so.

However, dioxins and furans may also be associated with fine solids and either removed from the product, collected in water treatment stages, or discharged with other wastes from the facility. We are very concerned about the lack of oversight over this vector of release, sir. At present, there is no control over the management and disposal of these wastes. Use of papermaking sludges in agriculture indicate the potential for substantial human and food chain contact.

There are considerable uncertainties and research needs, to be sure, in determining the factors which promote formation of chlorinated byproducts in pulpmaking. However, the uncertainties and research needs are not reasons to delay action which could expeditiously reduce risks and prevent the buildup of dioxins and furans in our waters, fish, and our very bodies. There is no need for EPA to await the results of a comprehensive industry-wide study of all facilities. There is sufficient information on the technical feasibility and economic acceptability for EPA to take these steps immediately, which we urge you to commend to the Agency.

Number one, ban the use and importation of chlorine bleached products from uses which contact food or are used by consumers in preparing or consuming food.

Two, restrict the disposal of dioxin- and furan-contaminated wastes from this industry to RCRA-approved incineration or land disposal facilities.

Three, ban further construction of new bleaching plants which utilize chlorine.

On a slightly longer term, EPA should be required to expedited review of discharge permits, as you've heard, for this particular problem for the entire industry around the country, to evaluate onsite management of water and sludge wastes, and to investigate potential worker and community exposure to releases.

In addition, EPA should establish an expedited timetable for the phase out of chlorine bleaching, beginning with the substitution of chlorine dioxide for a portion of the chlorine input, and ending with the transition to nonchlorine dependent processes of bleaching and pulping.

Mr. Chairman, this is a robust, economically healthy industry. According to Pulp and Paper trade journal in June, 1988, the industry is going to invest in excess of $400 million in capital expenditures for the next four years. This investment should not replicate the problems of the past by propagating an outmoded and environmentally hazardous technology.

Substitute processes have been put on-line in Japan and Scandinavia. I might also note, sir, that the lower operating costs—as revealed in industry trade journals—in those countries may threaten the future of the North American industry, particularly if consumer health concerns are not met responsibly and fully by the private sector and by Government.

Thank you, sir.

Mr. NOWAK. Thank you very much.

We'll now turn to Renate Kroesa.

Ms. KROESA. My name is Renate Kroesa. I am an industrial chemist. I have a 7-year degree in chemistry from the University of Tuebingen in West Germany. I serve as the international pulp and paper director for Greenpeace. I am based out of Vancouver, BC. I want to thank you for the opportunity to testify here before this subcommittee.

Greenpeace's efforts with regard to the pulp and paper industry began some three years ago when we addressed the pulp and paper industry in Sweden, West Germany, and Austria. The campaign was launched last year here in North America with the issuance of a report called "No Margin of Safety." We have submitted this as part of our written testimony.

"No Margin of Safety" played a pivotal role in making public the link between dioxin and the pulp and paper industry. The first few pages of "No Margin of Safety" outline how that particular document came to be, as well as some of the events that have occurred since.

I keep hearing that the pulp and paper industry keeps saying that it's only minute quantities of dioxins that the industry is discharging. Therefore, it is not much of a problem. Well, for one thing, I would like to point out that the availability of analytical procedures to detect these small quantities of dioxin does not effect the toxicity of dioxin.

The pulp and paper industry is discharging very large amounts of water on a daily basis, which means that even very small quantities of dioxin will accumulate to rather large quantities in fish and wildlife.

That's also another point I'd like to make right here. To include dioxin in the NPDES permits, and to allow a certain discharge of dioxin from pulp and paper mills will not solve the problem because, again, you have the bioaccumulation even at these seemingly small amounts.

Now within a few months of the publication of the report "No Margin of Safety," we received industry documents outlining that dioxin itself had been discovered in consumer paper products. The industry had even conducted a market survey asking consumers whether they would still buy the products if they knew that dioxin was in the products, such as coffee filters or sanitary napkins. Actually, the consumers said, no if they would know it, they would not necessarily buy paper products.

Interestingly, after we received these documents and made them public, the industry put a lot of money into risk assessments saying that dioxin in paper products is safe and that there is no risk for the consumer. The industry documents that we received that were leaked to us also said that more testing and more testing should be done until some changes would be made in the pulp and paper industry.

I would like to point out here that 5 more years of testing mean 5 more years of pollution. The possibilities to cut down the overall dioxin pollution are already available.

In our point of view, dioxin is only the tip of the iceberg when it comes to pollution coming from the pulp and paper mills. Even before Greenpeace knew about the link between chlorine-based bleaching and dioxin, we already knew enough about the industry's water discharge to warrant concern. Pulp and paper effluents rank as some of the most toxic effluent any industry can produce.

Chlorinated organic matter, or organochlorines, as they are correctly named, are a class of manmade chemicals which are not found in nature. They are marked by their toxicity and resistance to biological breakdown. Many are bioaccumulative. Almost all of the problem chemicals the EPA has banned over the last two decades are members of this chemical class.

The pulp and paper industry is responsible for more than half of all organochlorines directly discharged into the world's waterways.

All of this waste is linked to the conventional method of bleaching pulp from brown to white, a process which calls for the use of chlorine, chlorine dioxide and, to a lesser degree, the use of hypochlorite. In the United States there are about 100 mills that use this chlorine-based process.

To give you an indication of how much organochlorines come from an average sized mill, if a mill produces 500 tons of bleached kraft pulp per day, it will discharge around 25 tons of pure organochlorines every day. The effluent contains more than 1000 different chemicals, of which only about one-third have been identified chemically. This one-third contains many chemicals that are carcinogenic, mutagenic and, as already outlined, bioaccumulative.

I think there's reason to believe that in the near future we will find more chemicals in the bleach plant effluent that are also highly toxic and that will cause as equal a concern as the dioxin issue is causing today.

Unfortunately, the chlorinated compounds are not regulated. Sweden actually is the only country so far that has taken regulatory measures to regulate the discharge of chlorinated compounds. Normally in North America, it is the biodegradable substances that are regulated by regulating the biological oxygen demand and by regulating the total suspended solids.

Dioxin, even though I pointed out that it is the tip of the iceberg, of course, is a very big concern to us. For one thing, it has already been said that it is highly bioaccumulative. The other thing is that it is highly toxic. It is not only the most potent carcinogen ever tested in animals, it is also a chemical that effects the reproductivity. The reproductive affects have been observed in any species tested.

There's reason to believe that humans are as sensitive with regard to the reproductive effects. Knowing that dioxin is already present in human milk, and that the average human baby will ingest around four to five times the amount of dioxin than a healthy adult, should alarm us to eliminate all sources of dioxin as much as possible.

For the pulp and paper industry, there is one possible solution, and that is to not use chlorine during the bleaching process. As you, Mr. Chairman, have already said, Sweden is following this way. Sweden wants to have non-chlorine bleached paper products to be on the market almost exclusively by next year.

I have brought with me some samples of alternative paper products, some of which come from Sweden, and some of which come here from the United States and from Canada. I would like to submit them as part of our testimony.

I have brought with me coffee filters that have not been bleached. I have brought with me toilet paper from Austria that has not been bleached. I have writing paper with me in various whitened degrees. The recycled paper comes from Germany. It is gray, and it still has a large market share. The other two writing papers come from Sweden. They have not been bleached with chlorine, or contain very, very little chlorine. From Canada, I have brought with me completely unbleached paper towels. Unfortunately, I do not have diapers with me.

As already pointed out earlier, the possibility to bleach pulp without chlorine exists by using oxygen. The Swedes are using this technology. They are converting all their mills toward oxygen delignification. In Florida, earlier last month, there was an international bleaching conference. The Swedish scientists were able to present findings saying that their oxygen delignification mills do not emit any dioxins. The dioxin levels are below the detection limit.

In Canada, we have one mill that uses oxygen delignification. I have to tell you that here dioxin was still being found in the effluent, although in very low quantities. The reason for that is that this mill is still using chlorine after the oxygen stage. The washer this mill is using between the oxygen delignification and the chlorine process are very bad, so there's a high carry-over. You will still have dioxin formation in the chlorination stage.

I also want to point out that there was a cost figure put out this morning of around $100 million to $200 million to convert a mill to oxygen. This is not what I have heard. To install an oxygen stage will cost around $12 million to $15 million U.S. dollars. If you have to do other changes to the mill, like rebuild the recovery boiler and various other big changes, you will face larger costs. But an initial cost figure would be around $12 million to $15 million U.S. dollars.

I think I would like to close here by stating once more that Sweden is moving towards less bleached and unbleached paper products. With regard to the Champion International mill near Pigeon River, I do not understand why milk cartons have to be made of highly bleached pulp. In this case, it probably would be completely sufficient to have brown unbleached pulp being later coated and being presented as a milk carton.

Thank you.

Mr. Nowak. Thank you very much.

Once again, we have a vote on the floor. It's ironic that the vote in passage is of the Plant Closing Notification Act. We will, again, have to take a short 10 minute recess. I apologize for the length of this hearing, but we're sitting here with you. If you'll have a little more patience, we'll get right back as soon as we can. We stand in recess for 10 minutes.

[Recess.]

Mr. Nowak. The subcommittee will come to order.

The last witness on this panel is Carol Van Strum. Please proceed with your direct testimony. We will then be able to go back to the whole panel for questioning.

Ms. Van Strum. Thank you.

Honorable Chairman, and members of the subcommittee, my name is Carol Van Strum. I am a historian with a particular interest in dioxin regulation as a political phenomenon. I am coauthor of the report published by Greenpeace last year that stirred much of the controversy leading to this hearing. My report on the pulp mill dioxin problem summarizes more than 10 years of close study of EPA's dioxin regulatory program, including review of more than 100,000 pages of internal EPA documents.

The question of why EPA has failed to this date to take any regulatory action on the pulp mill dioxin question is an important one. The North American paper industry pollutes more than four billion gallons of water per day.

Over a year ago, EPA headquarters staff internally considered the dioxin hazard from pulp mills to be serious enough to warrant immediate regulatory action. Martha Prothro, who testified here today, was closely involved in that effort. Yet to date no action has been taken. This hearing is an important first step in congressional efforts to remedy that situation. I am sincerely grateful for the opportunity to speak with you today.

In 1980, EPA predicted that dioxin, TCDD, would be identified as a pollutant from pulp mills. This prediction was confirmed in 1983 by the discovery of high TCDD levels in fish downstream from several pulp mills in Wisconsin. This was reconfirmed in 1985 by levels found in associated stream sediments and pulp mill sludges.

Two and one-half years ago, EPA Region V officials attempted to take regulatory action on pulp mill dioxin pollution. That effort on the part of Region V was sabotaged by industry's and EPA headquarters' demand for further study. Today, we have history repeating itself as EPA, once again, substitutes further study—the 104 Mill Study—for necessary regulatory action.

For nearly two decades, one form of dioxin, 2,3,7,8-TCDD, has been recognized as the most toxic synthetic substance yet discovered. For ease of reference, I will simply refer to TCDD as dioxin. Despite this fact, EPA has balked at regulating dioxin from the beginning. The pulp mill dioxin problem is only the latest in a long history of inordinate delays and scandals involving EPA's semisecret dioxin regulatory program.

EPA regulatory proceedings against the dioxin-contaminated herbicide 2,4,5-T, for example, began in 1970. They were not completed until 1983, when the herbicide's major manufacturer voluntarily agreed to take it off the market.

EPA has still not promulgated standards to protect public health from dioxin pollution, despite a clear statutory mandate and despite a court order in 1976 to do so at least regarding water quality. We're dealing here with what is probably the most studied toxic substance ever known. There have been years and years and millions and millions of dollars spent on studying dioxin. Yet EPA has failed to take regulatory action almost across the board on this chemical. Instead, the Agency has relied upon informal, internal levels of concern. EPA's constantly fluctuating levels of concern have uniformly failed to address the cumulative dioxin exposure to which humans are now exposed.

To my knowledge, only one dioxin water pollution source, the Dow Chemical plant in Midland, MI, has ever been required to limit its dioxin discharges through the NPDES permitting program. EPA has identified at least one pulp mill discharging 50 times the amount of dioxin discharged by Dow, but has not limited the dioxin effluents of pulp mills.

EPA's double standard on dioxin is not an isolated incident. EPA also tolerates different levels of dioxin fish contamination in different areas of the country. In the Great Lakes area, EPA issues public health warnings if fish are contaminated at 1 part per trillion dioxin. Elsewhere, as in the Pigeon River situation, EPA recommends the 25 part per trillion warning level recommended by the Food and Drug Administration.

On the question of which samples of fish, whole fish or fillets—there was some discussion about that this morning—I think it's important to take note of the fact that when they analyze these fillets, they skin the fish. For many species of fish, people do not skin the fish when they eat them or when they cook them. It's very likely that a good load of the dioxin in that fish will be in the subcutaneous layer of fat right under the skin. None of the samplings on fillets has ever included the skin.

Furthermore, EPA's reaction to evidence of increasingly widespread dioxin pollution has been simply to change its risk assessments rather than to regulate the pollution In 1982, for example, EPA required cleanup of Hyde Park, New York contaminated soils down to 1 ppt to 50 ppt, the levels of detection at that time. Later that same year, when faced with the more extensive contamination at Times Beach, Missouri soils, EPA raised the action level to 1 part per billion, a thousand-fold increase.

Now, at Administrator Lee Thomas' direction, the Agency is raising the action level yet again, although no new scientific discoveries have demonstrated that dioxin is any less hazardous than previously believed. Administrator Thomas and the paper industry appear to think that political pressure can alter or nullify the toxicity of dioxin.

Such conduct on the part of the Agency charged with protecting public health raises suspicions that EPA is in bed with industry on the dioxin issue. Indeed, several scandals have reinforced such beliefs.

For example, high former EPA officials such as Anne Gorsuch Burford, John Hernandez, and Rita Lavelle resigned in disgrace amidst revelations that they had acted in industry's interests to suppress dioxin pollution information.

EPA's handling of the pulp mill dioxin problem should be viewed in light of its traditional behavior: Leaked American Paper Institute documents—which I believe were submitted to this subcommittee—show that collusion remains the norm between EPA dioxin regulators and regulated industries.

As summarized by U.S. District Judge Owen M. Panner last November in my Freedom of Information law suit, "The documents appear to support the existence of an agreement between EPA and the industry to suppress, modify, or delay the results of the joint EPA/industry study or the manner in which they are publicly presented."

The API documents, and others belatedly provided by EPA, indicate the direct participation in this agreement of EPA Administrator Lee M. Thomas. They also indicate that part of the plot involved perjured testimony by EPA officials in my Freedom of Information lawsuit.

Subsequent EPA deposition testimony revealed that API officials had actively lobbied EPA to withhold pertinent information from me and to mischaracterize both to me and to the public the information ultimately provided by EPA. Such activities blatantly violate the public disclosure requirements of the antitrust laws as interpreted in API's own internal legal memoranda.

Therefore, I respectfully urge this committee to consider referring the matter to the Justice Department for investigation, particularly in light of the personal involvement of EPA Administrator Thomas.

In summary, EPA's dioxin regulatory program is paralyzed and has been from the very beginning. The present laws regulating dioxin have been insufficient to stir EPA to action. More lives are at stake than just the lives of those who live near the Pigeon River. The Pigeon River residents breathe the polluted air and drink the tainted water, but all Americans use a wide range of dioxin-contaminated paper products.

Therefore, I urge the committee to support further investigation and to consider remedial legislation. Any of the resources I have available—including sworn depositions of involved EPA and API officials—will be at your disposal.

I request an opportunity to submit further supporting documents.

Ms. VAN STRUM. Thank you.

Mr. NOWAK. Thank you very much.

Thank you all for your statements. The record, of course, will accept documents as you wish to submit to the committee for our review.

Let me ask a couple of questions. First of all, Ms. Van Strum, you make the statement that more regulatory action could be taken. In this case, if you were at EPA with the power to do so, what further action would you take?

Ms. VAN STRUM. I think EPA had enough information—and certainly the Region V officials believed they had enough information—back in late 1985, early 1986 to at least institute section 308 actions against specific companies under the Clean Water Act, and indeed, began such a process.

It was the intervention of industry and the involvement of the Washington, DC, EPA headquarters that effectively tabled that 308 action. Indeed, there were informal agreements between industry and EPA that no further such actions would be taken during the pendency of the five mill study.

Mr. NOWAK. You made the statement that the only regulatory action that was taken was a Dow Chemical Co. in Michigan.

Ms. VAN STRUM. That's right.

Mr. NOWAK. Do you know what that consisted of?

Ms. VAN STRUM. I believe that eventually was arrived at in an out of court settlement between Dow and EPA. Dow agreed to limit its dioxin emissions into the Tidibiwassie River to 10 parts per quadrillion of dioxin in the effluent. At the time the agreement was drawn up, that was the limit of detection for dioxin in the water.

Mr. NOWAK. But you say out of court. So a lawsuit was instituted by EPA?

Ms. VAN STRUM. It certainly was, yes.

Mr. NOWAK. Then subsequently settled after it was instituted formally?

Ms. VAN STRUM. Pardon?

Mr. NOWAK. It was instituted though in the courts formally; they were sued. They were served; then settled?

Ms. **Van Strum**. Yes.

Mr. **Nowak**. That actually then was litigation.

To your knowledge, is there any other litigation pending by EPA?

Ms. **Van Strum**. You mean against any particular company?

Mr. **Nowak**. Yes. Against any other company?

Ms. **Van Strum**. I'm not aware of any that I can think of off the top of my head. But that doesn't mean there aren't.

Mr. **Nowak**. Do you know of any other outstanding litigation or Freedom of Information requests that you or anybody else have filed on this subject?

Ms. **Van Strum**. I'm still in court on one Freedom of Information Act request for the National Dioxin Study and the Pulp and Paper Study information. I understand the Environmental Defense Fund has a major lawsuit.

Mr. **Nowak**. Doctor, did you want to make a further statement on that?

Ms. **Silbergeld**. I can to an extent. Perhaps I could ask for further submission from our attorneys to give you full information.

In 1984, we petitioned—in company with the National Wildlife Federation—the EPA under section 21 of the Toxic Substances Control Act to take a range of actions. This included actions to control discharges into water, product contamination, air releases, combustion sources, and the like in order to deal with what we saw as a very disturbing situation where the country was being driven to spend hundreds of millions of dollars—as you've pointed out, sir—to try and clean up areas which had been, as far as we can tell, almost irremediably contaminated by dioxin, the Times Beaches, the Tittakawassee Rivers, the Pigeon Rivers of this country.

What we wanted to do was to move the Agency into a preventative mode using TSCA to control these substances at the point of generation. Since they are all inadvertently generated—that is dioxins and furans have no inherent economic value, no benefit to industry or to the consumer—we're really talking about regulating existing processes and controlling behaviors to prevent this unintended problem from being biomagnified throughout the environment.

Unfortunately, in 1985 when the Agency responded—again, I'm speaking not as a lawyer—it appeared to cloak itself in the letter rather than the intent of the law and to take limited actions only in the arena of chemical products, which by its reading was its sole authority under TSCA.

So therefore, with the authorities granted under section 21, we brought litigation requesting fulfillment of those other portions of our petition related to water discharge, to the new problem of paper and pulpmaking, which we added into industrial processes, combustion sources, and the like.

That case is scheduled to come to trial on July 25 here in Washington, DC. We hope it will result in the compelling of the Agency to institute a broad range of rulemakings, investigations, and oversight which we hope will deal with this problem directly in all spheres.

Mr. **Nowak**. Thank you.

Also, for anyone on the panel, have you had the opportunity to review the action that was called for recently by the environmental—I don't know what her title was—but the Swedish environmental movement?

Ms. **Kroesa**. Which action are you referring to?

Mr. **Nowak**. The calling for the different—Environmental Minister Dahl, in Sweden.

Ms. **Kroesa**. Well, I'm rather familiar with the situation there. The Swedish industry and the Swedish Government have been very concerned with the organic chlorine discharge for about 5 years.

Last year, after the EPA released a report about dioxin discharge from the pulp and paper industry, Sweden also started looking for dioxin in the pulp and paper mill discharges. In some of the products they found it, predominately in the mills that have not yet used oxygen delignification.

There is a movement in Sweden to identify the products that contain dioxin and chlorine and those products that do not. A consumer association actually even issued a brochure listing all the products available in Sweden, the chlorine content, dioxin content, and so on. This press release is just another step in the issue.

Mr. **Nowak**. Have there been any governmental actions against the company's production or using of the chlorine process rather than the mandate to notify the public of the particular product content?

Ms. **Kroesa**. Yes, there have.

Sweden is the only country so far that is regulating the total organochlorine discharge from pulp mills. They are not regulating dioxin discharge, per se. They are taking the broader approach towards the chlorinated organic matter. They are giving the mills discharge permits where they put a very stringent limit on the amount of total organochlorine the mill is allowed to discharge.

Mr. **Nowak**. Has that affected, as far as you know, the full competitiveness of that industry in Sweden?

Ms. **Kroesa**. Not from what I can tell. The industry has survived very well. The industry is still growing in Sweden. Now, because of all the dioxin discussion, the industry is in a very good competitive situation. In Germany, for example, German importers of pulp are asking the exporter, the producer of pulp, to quantify the organochlorine content and the dioxin content in the pulp they're exporting. German paper mills have to pay for the amount of pollution they put into waterways. That effectively means that German importers want clean pulp. They will buy it from Sweden and not necessarily from North American mills.

Mr. **Nowak**. Yes. Thank you very much.

Mr. Stangeland?

Mr. **Stangeland**. Thank you, Mr. Chairman.

Doctor Silbergeld, could you give us your assessment of the methodology used in conducting the five mill study? Could the study been done more quickly, given the availability of only two certified testing laboratories? Did you detect any bias in the way the study was structured?

Ms. **Silbergeld**. Well, first off, there are more than two testing laboratories available to conduct such research. I'm certain that with the assiduous searching of all academic sources of expertise, there would be wider resources available to conduct the study.

The real answer to your question, sir, is twofold. One is, what's the purpose of conducting the study in the overall goals of the Agency, which is after all not a research agency, but an Agency empowered to effect protection of the environment and public health. As we've commented, we don't think that the completion of a mill-by-mill study in its totality is necessary in order to figure out what rational steps to take in 1988. Other countries seem to be able to figure them out.

The other part of the study that is disturbing to us from a scientific perspective is that it is focused very much on trying to define the exact chemical processes and events occurring in what is a relatively gross process overall—presumably to try and intervene and modify the process. This is in distinction to what we would consider a very important aspect, and that is, if you will, the mass balance and distribution of organochlorine substances.

I certainly want to join with Ms. Kroesa about broadening our concern to this entire spectrum of chemicals, not solely the dibenzodioxins and furans here which are kind of a landmark, if you will, of our concern, but don't encompass all of it.

It's not so critical to understand what might be the point-by-point chemical reactions in what is a relatively uncontrolled system in order to get a handle on what are the points where a regulatory agency or, in fact, an industry might invest its time in effecting a change.

One would be better served by looking at the mass flux of the process, the way in which different parts, solids, product, and water behave and the points of intervention which would repay regulatory and private sector investment to reduce the overall risk.

Mr. STANGELAND. But isn't it necessary, if you're a regulatory agency, in order to write responsible regulations to control a problem, to know from whence the problem comes within the process?

Ms. SILBERGELD. That's only, sir, if you accept a premise that you're not going to go upstream in the entire process and perhaps rethink some of the fundamental aspects. I think what the Agency is doing is tying itself to an extremely expensive and time-consuming treadmill by buying into the preconceptions of the industry.

There's ample data in the scientific literature for the past two years at least. There is ample data being submitted by industry in Scandinavia particularly. We know that use of a chlorine-dependant system in an aquatic-based process in the presence of precursor substances of these lignins and phenolic molecules from pulpmaking is going to yield up these cyclic molecules that have chlorines attached.

Now whether there are going to be 2,3,7,8-, or whether they're going to be distributed into quinones or other substances isn't really necessary, I would suggest, for the purposes of a regulatory agency. Perhaps for research, yes. But in terms of saying that there is something about the addition of chlorine in this uncontrolled system with these acceptor molecules inevitably present in wood that's sufficient, in my opinion, for the Agency to take responsible action.

Mr. STANGELAND. We're talking about the previous 2 years now. But when was the five mill study conducted?

Ms. SILBERGELD. The five mill study was instigated about a year and a half ago.

But, in fact, before that there was sufficient information, really—if the Agency wants to cloak itself in science—from the combustion chemistry studies undertaken over the past decade by Buser and others to indicate that if you have lignin phenolic-type molecules, a high availability of free chlorine, oxygen, and heat you are likely to produce this range of molecules.

As Ms. Van Strum pointed out, there was very good scientific basis to assume that this would be a problem in the mind of EPA back in 1980.

Ms. VAN STRUM. Can I add something to that?

Mr. STANGELAND. Yes.

Ms. VAN STRUM. The American paper industry informed EPA in late 1985, early 1986 that the source of the dioxin was the chlorine bleaching process. The industry itself already knew that and informed EPA of that fact. In light of that, EPA was clearly delaying a regulatory action by studying the problem to death.

Mr. STANGELAND. OK.

Dr. Silbergeld, again, your written statement criticizes EPA's methodology in setting health-based standards for dioxin because the Agency averaged the results of testing in one case and because test results were rounded up in establishing the final health assessment for dioxin.

Could you elaborate somewhat? I'm not sure I understand what the problem is with averaging and rounding in performing very complex test results.

Ms. SILBERGELD. Sure.

The problem is, sir, that the results were not averaged or rounded up. What happened was that the Agency took the output of different risk assessments. They threw those together in either an averaging, or most recently in a new innovation, rounding up.

It has been reported in the media that an industry consultant compared this process to resolving an argument between people who think the world is flat and people who think the world is round by saying, well, let's compromise and say the world is a parabola.

Now you just can't do that in science. You either adopt the data within a set generated by accepted scientific principles under peer-reviewed, quality controlled data—and the data generated by Dow Chemical and by the U.S. Government, both sets, fit those criteria admirably. They are very close, incidently, in their output. You then apply a method which has been peer-reviewed and can be objectively considered by the scientific community—that's, in fact, what EPA's risk assessment methodology is—and you come up with an answer.

Now to take that answer and then try to take someone else's risk assessment methods, average them together, or round them up within some so-called window of comfort—which is a very strange phrase—is not a scientific process. There are in science, unfortunately, right answers and wrong answers. The average has no real meaning because, in fact, there is no data set and there is no methodology behind the average.

It's a very distressing process going on there. One is led to the conclusion—which I find very regrettable here, sir, as a scientist—that EPA is willing, really, to sell its science down the river in order to get a little bit of comfort in dealing with some particular pollutants they find very hard to deal with.

Mr. **Stangeland**. Could you give us your assessment of the primary sources of dioxins in humans? How much of this can be traced to the bleach kraft paper industry?

Ms. **Silbergeld**. We have, in fact, tried to do that. I'd be glad to submit some additional material.

Broadly speaking, probably the major input of dioxin into us today—unless we happened to be employed in specific circumstances, or have had exposure through service in Vietnam, or some other specific condition—is through the food chain. This is a finding that most people who have looked at the subject in northern Europe would agree to.

So if we step back then from food—dairy products, meat products, fish, chicken that are fed on fish meal, and other sources in the food chain—we say what is going into the food chain? There, I think, we three large sources.

That's another reason, if I might say, why we brought our lawsuit under TSCA, because we didn't want to fractionate this problem. We wanted to get at it comprehensively. We wanted to try to persuade the Agency not to use its normal methods of setting one source against the other and leading us into a stalemate, but rather to encourage a comprehensive human receptor based approach.

If you look at the food chain, the major sources probably going into food—and I don't mean to necessarily rank them by the order in which I express them—are combustion sources, including municipal incinerators; chemical production, that is, broadly speaking, those processes using phenolic/benzoic precursors and chlorination or bromination; and pulpmaking.

Mr. **Stangeland**. Would you compare the risks of dioxin in sludge to the risks of dioxin in pulp and in effluent? Which is the greatest concern?

Ms. **Silbergeld**. I'm glad you mentioned that because we do tend to focus on the product when we look at something like a paper cup and think about how we use it. We do, of course, focus on the discharges into water when we hear accounts like what has happened in the Pigeon River.

But, in fact, we are very concerned. If you look at the data that EPA has published so far, in fact, some of the highest concentrations are found in the sludges and in the solids that are removed.

We must be careful to avoid transferring this risk. For instance, if the paper industry were to react to public concern by cleaning up its product, it might, in fact, result in greater contamination of the solids and wastewater discharges.

We're very concerned about these solids when they're collected, because there has been a practice in this country of using this material to improve soils for agriculture. You may be aware that the State of Maine, where this was a common practice, has taken so much oversight and attached so much liability and conditions to that practice by prohibiting the use of land where sludge has been disposed of, prohibiting any future use in agriculture so that, in fact, that practice has been practically discontinued. So we are very concerned.

We encourage you to enquire of the EPA as to how effectively it is using the hazardous waste statutes which specifically mention dioxin and furan contaminated waste as a result of Congress' amendments to RCRA and to the Hazardous and Solid Waste Act. We encourage you to enquire specifically as to how these risks may be transferred and then forgotten into the waystream.

Mr. STANGELAND. Well, you partly answered the next question that I was going to ask you, which was the risks posed by dioxin contaminated sludge. But what potential risks are involved using that sludge for agricultural purposes? Can the agricultural commodity crop that's produced on land that has had sludge added to it pick up the dioxin in the produce that's raised?

Ms. SILBERGELD. Fortunately, only to a limited extent. Unlike mammals, plants seem to have a fairly good system for keeping out the most toxic dioxins, with the possible exception of certain root vegetables. These are studies that have been done, particularly in Italy, that most leafy or fruiting vegetables do not, in fact, take up much of the 2,3,7,8-isomers of these chemicals, which are the very toxic ones.

However, concerns still remain as to the potential exposure, particularly of grazing animals. That's because grazing animals, in the course of eating grasses and hays, will also rip up herbage from the ground and ingest a fair amount of surface soil at the same time. So there is a potential, in fact, for uptake by cows and cattle, for example, and incorporation into milk and meat fat, as well. Therefore, that is a risk factor that we're very concerned about.

Mr. STANGELAND. In the case of Maine, famous for potatoes and the tuber crop, that's one reason for banning?

Ms. SILBERGELD. That's absolutely right.

Mr. STANGELAND. But if you were to raise tomatoes, cabbage, lettuce, leafy things above the ground, there wouldn't be too great a danger?

Ms. SILBERGELD. Not necessarily to the consumer or the crop. Of course, we should keep in mind the hazards of the farmer working the fields where he or she is, of course, going to come into contact with the contaminated soil.

Mr. STANGELAND. One last question. Mr. Chairman, in the essence of time, because we have some other panels, I may submit some questions in writing as well.

You claim there's no oversight of the management and disposal of sludges and solids resulting from bleaching and pulping operations. Are there no State or local governments doing anything in this area?

Ms. SILBERGELD. Well, perhaps others here might amplify, but to our knowledge the State of Maine is taking the most vigorous oversight at the present time. However, that oversight is not really directive, but is rather attempting to attach our best current estimate of the potential hazards through a liability and oversight process rather than a direction toward sound management of these wastes.

Mr. Stangeland. Thank you.

Thank you, Mr. Chairman.

Mr. Nowak. Congressman Quillen.

Mr. Quillen. I'm intrigued at the facts stated in "No Margin of Safety" the Greenpeace report. This clearly states that EPA knew that pulp mills were potentially major dischargers of dioxin pollution. When EPA testified, they said they did not know until 1985 that dioxin was caused by pulp mills. Is this report factual? Whoever wrote the report, I'd like for them to respond.

Ms. Van Strum. Well, I'm coauthor of that report. That very statement is based on a string of documents received from EPA under the Freedom of Information Act request. Now it's very clear that by 1980, if not earlier, EPA was certainly aware of the potential for dioxin contamination from pulp mills because of the chlorophenol-based slimifides that were used in those mills. That was a serious concern in 1980.

By 1983, fish samples in the Petenwell flowage in Wisconsin, downstream from two major pulp mills, proved to be so high in dioxin that the fishery there was closed. At that point, EPA, which was then embarking on its National Dioxin Study, chose to sample fish downstream from a number of pulp mills in the course of the National Dioxin Study because of the very strong indications by 1983 that those fish were being contaminated by the pulp mills.

By 1985 and early 1986, samples of some of those fish had been analyzed. EPA and certain States, the States of Wisconsin, Minnesota, and Maine had actually analyzed sludges and sediments from pulp mills in those three States. They found levels of dioxin in the sludges that they could relate directly to the chlorination process.

Mr. Quillen. Mr. Chairman, I think this inconsistency should be followed through and EPA should have the opportunity to submit in writing their response. I think this is very significant because it clearly indicates—since the Champion Paper mill has been in production for 80 years—that only in 1987 did they discover dioxin in the stream.

Mr. Ross, does the Izaak Walton League have any information regarding the toxicity of dioxin and how it accumulates in fish?

Mr. Ross. Yes, sir, Congressman Quillen.

We received a letter following a phone inquiry directed to Paul Merli, who has his Ph.D. and is chief biologist at the U.S. Department of the Interior, Fish and Wildlife Service, National Fisheries Contaminate Research Center, in Columbia, MO.

We outlined in our phone conversation to him some early concerns right after we received this release of dioxin being in the stream there that was provided by Greenpeace.

I have a letter here from him dated to me November 20, 1987.

> Dear Mr. Ross, please find a prepublication copy of the manuscript "Toxicity and Bioaccumulation of 2,3,7,8-TCDD in Rainbow Trout". This manuscript is published in the January 1988 of Environmental Toxicology and Chemistry. Also enclosed is the FWS research information bulletin which is attached to this.

> We found TCDD to be extremely toxic, even more than anticipated. TCDD is approximately 1,000 times more toxic than either endrine or taxophone, which are two highly toxic insecticides. Also, TCDD has a much greater bioconcentration potential than previously estimated, which implies that bioaccumulation and persistence in the aquatic food chain represents a real concern.
>
> You have very legitimate concerns for the presence of TCDD in paper mill effluents. And even greater concern is the potential for TCDD to be bound to sediment material in rivers and lakes. TCDD binds very strongly to the aquatic content in soils and sediments. The factors that control the fate and release of TCDD from sediments remains unknown. Dredging, or any other physical disturbance of contaminated sediments, will most likely cause release of the TCDD into the water column.

And just a statement in the research summary: "The predicted BCF, which is bioaccumulation factor at equilibrium, estimated by the biofact computer model ranged from 37,000 to 86,000 times greater than the dioxin found in the sediment in the environment." Those are extraordinary figures.

When you tie those, Congressman Quillen, to the statements that were released in the document entitled "Dioxin Public Affairs Plan" dated March 2, 1987—this was the document that was released to Greenpeace from the American Paper Institute. I want to just point out just a couple of statements that we feel are very, very disturbing in this matter.

Under the heading "Dioxin Coordinating Committee, Item B, Long-Term Objectives." "(After the joint study release). Item: new improved dioxin risk assessment is one of their objectives."

Then, under "Short-term Objectives, Specifics with EPA," these points. "To get EPA to discuss the issue with the media in a balanced non-hysterical manner."

Two: "Get EPA to 'rethink' dioxin risk assessment." Let me read that again. "To get EPA to 'rethink' dioxin risk assessment."

Three: "Have EPA not to seek publicity," and underline "not seek."

Item four, "Get EPA to issue the statement 'No harm to the environment or public health.' "

Finally, in this document under "Activities with EPA Administration," under item 7, "Improve intelligence gathering with EPA." They list there, amongst some other things at the bottom—I won't read all those points, because this document is part of the public record. They list: "Identify 'allies' within EPA. Allies is in quotation marks. "Identify 'adversaries' within EPA," and they're in quotation marks.

Finally, Congressman Quillen, the risk assessment that was released in the December papers in our area list here "EPA rethinks risk from cancer agents." Underneath there it says that "The cancer risk assessment was one-sixteenth of the Agency's 1985 estimate."

Now let's turn that one-sixteenth to what Dr. Merli had indicated was the toxicity of 10,000 times more than the insecticides. If our math isn't wrong, that proves to be 650 times, still, more toxic than these very toxic insecticides.

You can see why we're alarmed about the potential health of the fisherman that would fish in that river. You can see why we're especially concerned about Oliver Blackwell's statement, as he represents Champion International, when he downgrades the amount of dioxin found, and used the statement that the dioxin found in one of the fish samples, Congressman Quillen, is like 19 seconds in over 30,000 years. Now that lays people to rest like there's very little risk in the fish.

We're concerned not only for those people who fish below the mill in Cocke County, but the Izaak Walton League is very concerned about the 60 million fishermen in this Nation that may have access to contaminated fish below these other some 100 paper mills.

Thank you.

Mr. Quillen. I thank you, Mr. Ross.

Due to the constrains of time, I think you've made a very comprehensive statement. Any other information, you can make available to the record.

A final question. I notice that through the Freedom of Information Act you have documents to indicate that there's collusion between the American Paper Institute and EPA to withhold certain information. Someone testified to that effect, I believe. Who did that?

Ms. Van Strum. That was me.

What is it that you wanted to know?

Mr. Quillen. The documents received through the Freedom of Information Act.

Ms. Van Strum. Well, there's two sets of documents. One was received through the Freedom of Information Act. The other was a set of documents that were leaked out of the American Paper Institute. I think that you need to take both of those together in terms of——

Mr. Quillen. Well, either one. I'd like those documents made part of the record, if they're available.

Ms. Van Strum. I believe that the American Paper Institute records were made part of the record, or submitted to the subcommittee at any rate, weren't they?

Ms. Silbergeld. I think they're in.

Ms. Van Strum. As far as the Freedom of Information Act records, there's close to, or maybe even more than 100,000 pages of records. I have attached to my testimony some 93 pages of records. There are two further submissions that were put together by Greenpeace. If there's anything more that you want——

Mr. Quillen. I just wanted to be sure it's part of the record.

Thank you, Mr. Chairman.

Mr. Nowak. OK.

Those papers are part of the record.

Mr. Valentine. Mr. Chairman, are you ready for me?

Mr. Nowak. I just wanted to make one other statement here before we hear from Mr. Valentine.

All of the paper mills throughout the world, I assume, have had this same problem. Living in a Great Lakes area, I was just wondering—the Canadian Government has, I understand, a substantial amount of paper production pulp on Lake Superior. I wondered if Greenpeace has looked at that situation? What comparable facts have you discovered?

Ms. Kroesa. Actually, I am just coming back from a two week visit in Thunder Bay, which is on Lake Superior, and which is home to the largest pulp mill in that area.

We have looked into the situation. The three largest pulp mills in that area do not have any waste treatment at all, which eliminates a sludge problem. But, of course, all the waste goes right into the lake.

The Canadian industry is right now thinking of moving toward substituting a substantial part of the chlorine with chlorine dioxide. This may reduce the amount of dioxin discharged, but it will not reduce a lot of the organochlorines discharged. We are very concerned about that move. We are actively working in Canada to get the Canadian pulp and paper industry to adopt oxygen instead of chlorine.

I can give you figures and—yes?

Mr. NOWAK. What steps has Environment Canada taken in this regard?

Ms. KROESA. Environment Canada has studied the problem very similar to the EPA. There is more than just the pulp mills on Lake Superior. The pulp mills in British Columbia have been discovered to have a very substantial dioxin problem because pentachlorophenol is used in lumber mills. The wood chips, contaminated, go into the pulp mills. The output of dioxin is much larger than anywhere else in the country.

The Environment Canada, together with Fisheries and Ocean and Health and Welfare, has conducted a national survey in Canada. Part of the results had been released about two months ago. It was found that particularly crabs, but also stationary fish in the area are extremely contaminated with dioxin around British Columbia, but also around Alberta.

Environment Canada and Fisheries and Ocean are still studying the problem. I think they're waiting for the EPA to make a move, and EPA is waiting for Canada to make a move. Everybody is waiting and studying and studying.

Mr. NOWAK. Thank you.

Mr. Valentine.

Mr. VALENTINE. Thank you, Mr. Chairman.

Mr. Ross, could you identify, again, the paper writings from which you read to Congressman Quillen?

Mr. ROSS. Yes, sir.

I had three of them. One was a letter from Dr. Paul Merli, Department of the Interior Research Biologist. This was a study that he had done on rainbow trout of the toxicity of TCDD 2,3,7,8- and the bioaccumulation within those fish.

Mr. VALENTINE. Which was the one that had the materials suggesting that the EPA should downplay, or should make some change?

Mr. ROSS. This came from a document entitled "Dioxin, Public Affairs Plan." The American Paper Institute had compiled some, as I count, 40 pages of an extraordinary document that deals with aspects that are rather dizzying, national in scope. They train spokesmen. The plan in here is to access not only people in Congress who can provide a very warm environment for people who would maybe make decisions that would be along the line that they would have——

Mr. VALENTINE. Is that a signed document?

Mr. Ross. This is not signed, but there are documents with the packet. I think all these things are part of the record. There are documents relating to this plan that are internal memos used in American Paper Institute that cite the "Dioxin Public Affairs Plan," and also cite meetings that were held with EPA relative to a number of matters.

Mr. VALENTINE. Is this the document that you said contains some suggestion that the Environmental Protection Agency should be prevailed on to change its attitude?

Mr. Ross. Well, yes, sir. That would be up to the interpretation of the reader.

But as you would look through this and have your staff read through this document—it is part of the public record. Also, not to pass the buck, but Greenpeace, having released this—and there's a cover letter by Joyce McLean, International Coordinator of the Great Lakes Greenpeace Region speaking to this issue—the Greenpeace people are authorities on the internal part of this. I think Ms. Van Strum is also an authority this.

I think it's conjecture right now as to the success of any of these programs. But just to read a plan like this—when, say, the people from Cocke County, and folks like me, just average citizens, Congressman, read something like this, how do we take it? We're bewildered. We're confused.

Mr. VALENTINE. I understand that. I don't want to prolong it. But the reason I asked these questions, I wonder if it would—I don't want to add to your burden.

Mr. Ross. Well, it is a burden, sir.

Mr. VALENTINE. I don't want to have to come and dig through the papers of the committee. Would you favor me by sending me a copy of what you read from, with the material that you read highlighted?

Mr. Ross. Certainly.

Mr. VALENTINE. All right, sir.

Mr. Ross. In fact, you can have this copy. There are a number of places marked through here that—it doesn't make good bedside reading because it's too disturbing. But I'll certainly give it to you, Congressman.

Thank you.

Mr. VALENTINE. Thank you, Mr. Chairman.

Mr. NOWAK. Thank you.

Let me thank the panel for a very extensive and, to some degree, complex reiterating of your individual involvements in this problem over a long period of time. We appreciate all of the effort that it took to accumulate that material for us on the committee.

Again, we may have questions in the future on this subject and also have the opportunity to distribute this to other interested parties here in the Congress.

I want to thank you again for your information. We'll be keeping the record open for any other submissions that you so desire to make. Thank you very much.

[The prepared statements of Mr. Ross, Ms. Silbergeld, Ms. Kroesa, and Ms. Van Strum follow:]

THE IZAAK WALTON LEAGUE OF AMERICA

Statement of Mr. Nelson Ross
President,
Mossy Creek Chapter
Izaak Walton League of America
before
United States House of Representatives
Committee on Public Works and Transportation
Water Resources Subcommittee
July 13, 1988

Mr. Chairman and members of the committee, my name is Nelson Ross. I'm from Jefferson City, Tennessee and serve as president of the Mossy Creek Chapter of the Izaak Walton League of America in that city. Today, I also represent the Bill Keiffer Lakeway Chapter of the League in Morristown of which I am a member.

We appreciate this opportunity to come before you and present our views regarding problem of dioxin pollution in the Pigeon River. We would also like to take this opportunity to express our deepest appreciation for the leadership and ongoing efforts of our Congressman, James Quillen, on this matter of vital concern to his constituents in Tennessee.

Mr. Chairman, Mr. Oliver Blackwell, Vice President for Operations at Champion's Canton Paper Mill in North Carolina, has continually denied that the mill pollutes the Pigeon River. We believe while Mr. Blackwell made these statements Champion has known the mill was polluting the Pigeon River with dioxin. This belief is based on information that came to our attention as a result of documents released by the environmental organization Greenpeace which we received in November of 1987.

As an active conservationist in Tennessee, I would like to discuss what we believe is the primary reason for Mr. Quillen's concern as to why the issue of dioxin in the river was not addressed until we released the matter to the press in December of 1987. We feel that a brief examination of Champion International's behavior and tactics throughout the current permitting process will show how we have arrived at the current situation.

This giant multi-billion dollar corporation employs more people than reside in Cocke County Tennessee. They own 23 times more land than is found in Cocke County and have continually used this power to hold the people of Western North Carolina economic hostage and effect favorable interpretation of the Clean Water Act in the water quality permitting process.

How has this been done?

FIRST: They have gotten Governor Martin of North Carolina and many officials in various state agencies to agree with them publicly that "The color is an aesthetic problem. It's not toxic and it does not have that big an adverse effect on the water quality of the Pigeon River." In fact, Governor Martin has been quoted as saying, "It's not an environmental problem. It's not much of of a visual problem either." Further he stated that Tennessee's color standard for the river was "one that they just arbitrary set over in Tennessee. It's a way of trying to hurt business over here."

SECOND: Champion's threat to close the mill if the original EPA draft permit requiring that they meet 50 color units at the pipe were enforced has so brutalized the citizens of Western North Carolina with the FEAR of losing their jobs that very few have the courage to speak out in favor of cleaning up the river. For that matter few people will criticize Champion International, PERIOD! This quite evident when one considers the freedom with which Oliver Blackwell speaks on most any subject with seemingly little fear of adverse public reaction. He unleashed a scathing attack on his most staunch supporters in Haywood County by stating that if they didn't get serious about expressing their support of Champion to EPA that "we can make the grades of paper we need for the envelope business elsewhere. There is nothing unique about Canton that forces us to make it here." He went on to say that, "Without this consensus, you'll see a local economy trying to survive on service industries rather than being a robust manufacturing-based region." In that same speech he said "I am afraid any permit with any color number in it will not stop these so-called broad-based citizen action groups, the politicians who listen to them and a news media that is hooked on controversy from complaining about our operation."

At other times Mr. Blackwell has stated that he would eat the fish from the river (even after dioxin was found in the fish!), that only trace amounts of dioxin was in the river and that they posed no threat to public health, and at times accused others of being the major polluters of the river - that the only thing of concern that Champion put in the river was color and "color is not toxic." Finally, in spite of the fact that numerous studies over many years report the Pigeon River to be severely polluted - many were done by North Carolina agencies, Champion hired a firm to "study" the river. The firm reported that Champion's discharge had "no appreciable adverse effect on aquatic life in the stream."

THIRD: After getting North Carolina's support, and subjugating the citizens through fear, Champion and people supporting them, seemed to be able to do almost anything in North Carolina with impunity. For example: During the height of the permitting process they sent a ton of rainbow trout to the legislature of North Carolina and sponsored a huge fish fry in Raleigh. (This seemed to be little enough reward for folks who had been so good to them in the past. Some folks will do anything for a mess of fish!) Workers representing Champion had elderly citizens sign a form letter to EPA supporting Champion before serving them Christmas dinner. A school teacher had a serious problem when some students in her class posted artwork expressing the need to clean up the river. WLOS TV in Ashville was threatened by boycott for featuring Dick Mullinx founder of the Pigeon River Action Group as man of the week. Mr. Mullinx had to leave the state in the middle of the night due to serious threats on his life and property by Champion supporters.

Perhaps the crowning blow by Champion to utterly control the entire water quality permitting process was the hiring of a consulting firm to organize a giant public relations campaign prior to the first public hearing held by EPA on the draft permit in Ashville. This campaign made a travesty of the hearing where only supporters of Champion spoke. Other groups and individuals indicated to us that they were afraid to speak due to the feeling that they would be targeted for reprisals. Later this campaign organized more than 2,000 Champion supporters wearing yellow hats to be bussed to the Tennessee hearing in Knoxville using some four and one-half miles of busses. Incidentally, the buses were led to the Tennessee state line by none other than Governor Jim Martin!

It is astounding that Champion International went to such lengths to seemingly grind their heal into the faces of the citizens of Tennessee. Consider these facts: The consultants organized some 550 volunteers to man Champion's "Save a Town" center, making an estimated 54,000 phone calls. This same firm operating from the Champion owned headquarters generated some 234,000 mailings soliciting support for Champion's cause be sent to EPA.

IN CONCLUSION: It is little wonder that the citizens of Tennessee are bewildered and wonder why they were not informed about the potential dangers of dioxin contamination in the Pigeon River before learning about it through documents provided by Greenpeace in November 1987! ESPECIALLY WHEN THESE DOCUMENTS SHOW THAT BOTH EPA AND THE PAPER INDUSTRY KNEW OF THE DANGER SOME TWO YEARS EARLIER! We think Champions extraordinary pubic relations effort, spending hundreds of thousands of dollars, has has an effect on how EPA dealt with dioxin in the Pigeon River.

MR. CHAIRMAN, OUR PLEA IS THAT THIS COMMITTEE WILL TAKE WHAT EVER ACTION IS NECESSARY TO INSURE THAT THE CITIZENS OF BOTH NORTH CAROLINA AND TENNESSEE ARE PROTECTED FROM DIOXIN (2378 TCDD) IN EPA'S WATER PERMITTING PROCESS FOR THE CANTON PAPER MILL. THANK YOU FOR YOUR CONSIDERATION.

THE IZAAK WALTON LEAGUE OF AMERICA
INCORPORATED

FOR IMMEDIATE RELEASE

FOR 80 YEARS, CHAMPION INTERNATIONAL PAPER MILL IN CANTON, NORTH CAROLINA, HAS POLLUTED THE PIGEON RIVER WITH IMPUNITY THROUGH THEIR LEGAL FOOT-DRAGGING, POLITICAL INFLUENCE, CONTROL OF THE LOCAL MEDIA, AND USE OF FEAR TACTICS BY THREATENING TO CLOSE THE MILL IF FORCED TO CLEAN UP THE RIVER. IN AN EFFORT TO HELP BRING THIS DEPLORABLE SITUATION TO AN END, MEMBERS OF THE IZAAK WALTON LEAGUE OF AMERICA ARE PRESENTING A LIST OF CONCERNS REGARDING WHAT IS PERCEIVED TO BE VIOLATIONS OF CHAMPION'S OWN ETHICAL STANDARDS IN THIS MATTER TO THE PROXY MEETING OF STOCKHOLDERS THURSDAY MORNING IN STAMFORD, CONNECTICUT.

National Office: Suite 1100, 1701 N. Fort Myer Drive, Arlington, Virginia 22209 • Phone 703/528-1818

THE IZAAK WALTON LEAGUE OF AMERICA
INCORPORATED

May 10, 1988

The following is an excerpt taken from a letter written by Orville E. Bach, Jr., Professor of Economics, and William H. Barnett, II, Assistant Professor of Accountancy at Walters State Community College in Morristown, Tennessee. The letter was addressed to Ms. Patricia L. Stoddard, Director for Administration, who reports to Champion International's chief executive officer in Stamford, Connecticut.

Above Canton, this mountain river (Pigeon River) is very clean and supports numerous recreational activities. The mill, of course, provides an important economic impact to the Western North Carolina region; however, all this is reversed downstream as the Pigeon River flows 27 miles through Cocke County, Tennessee, colored almost black, covered with foam, and emitting a very foul odor. The river is unfit for recreation, real estate development, or water supply; and it creates a tremendous obstacle to expansion of the area's tourism base and the attraction of new industry.

Champion's pollution of the Pigeon River represents a classic application of an external diseconomy, where the production of a commodity inflicts costs upon some third party without compensation. Given the insensitive and unethical manner in which Champion has handled this case over the years, we were quite surprised to see your firm so well represented by the Business Roundtable in their recently published "Corporate Ethics: A Prime Business Asset." However, after speaking with you, Phil O'Connell, Richard Anthony of the Roundtable, and Paul Pullen, corporate ethics director at Raytheon, we are of the opinion that perhaps top management at Champion is not completely aware of events and episodes which have recently taken place involving the Canton mill. These events certainly seem to fly in the face of "The Champion Way" and have created a horrendous public image of Champion throughout most of the State of Tennessee.

Therefore, it is our hope that through presenting the enclosed material, top management will see the need to take steps necessary to create a situation where the company demonstrates "The Champion Way" through its actions and becomes a good corporate citizen and neighbor to Cocke County and East Tennessee.

National Office Suite [illegible] [illegible] N. Kent Street Arlington Virginia [illegible] • Phone [illegible] 528-1818

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In considering the ethical posture taken by management of Champion's Canton mill, we would like to reference the following statements taken from "The Champion Way" and The Roundtable's "The Corporate Values Program at Champion International Corporation."

1. "Champion wants to be known as an open, truthful company."

2. "Champion wants to be known as a company which strives to conserve resources, to reduce waste, and to use and dispose of materials with scrupulous regard for safety and health."

3. "We take particular pride in this company's record of compliance with the spirit as well as the letter of all environmental regulations."

4. "Among the many elements of "The Champion Way," honesty and integrity in dealing with the company's various constituencies stands out as being understood and practiced throughout the Company."

5. "In particular, Champion is perceived as taking actions that mark it as "a good corporate citizen."

6. "This is demonstrated...in taking on increasing responsibilities for overcoming environmental pollution...."

We trust that the following concerns and supporting articles and photos will be received in a constructive manner so that a situation which has created great animosity and which continues to fester could be turned around to produce a process of healing in our region.

Concern 1

Considering the extent of the degradation of the Pigeon River below Canton, the pristine condition of the river above the mill, and the length of time this pollution has existed (80 years), has Champion been sensitive to the citizens of East Tennessee who are on the receiving end of the pollution?

Consider statements made to television reporters by Oliver Blackwell while standing on the banks of the Pigeon River with black effluent pouring into the otherwise clean stream. "The Pigeon River is not dead. It is recovering. The color of this effluent entering the river is not toxic. It is an aesthetic quality. It is the same material that appears in rivers along the East Coast of North Carolina quite naturally."

A. The average citizen watching television understood Blackwell to mean that the effluent is not toxic. Therefore, the pollution offers no health problem to people or wildlife. In fact, he said the "color" is not toxic. The "color" of strychnine, of course, is not toxic either.

B. The Pigeon River is not recovering. Numerous studies performed by the States of Tennessee and North Carolina have documented the severe impact on fish and other organisms in the waters.

C. Is it ethical to compare a mountain river, which runs clear in its natural state, to a coastal or swamp river which tends to stagnate and thus shows more color? The darkest river on the North Carolina coast has a darkness level of only 100 color units whereas the Pigeon River averages 400 color units and reaches 800 or more units during low flows in summer.

D. Is aesthetics not important in our lives? After all, is not the color of paper (brown vs. white) simply a matter of aesthetics? Are we to assume that Champion expects citizens in East Tennessee to be satisfied with dark-brown, smelly waters for swimming, fishing, and floating, while the river above the mill runs clear?

Concern 2

Has Champion demonstrated "honesty and integrity" by refusing to publicly admit that the Canton mill pollutes the Pigeon River? When asked the question, "Does the effluent from Champion's Canton mill pollute the Pigeon River?" Oliver Blackwell responded by saying, "That question is kind of loaded. It cannot be answered with a yes or no. What is the definition of pollution? Is it anything that mankind puts back into a river that isn't already there naturally?" Is this an example of an "open and truthful" company?

Concern 3

During the spring of 1987, a Pigeon River whitewater rafting guide asked company officials if the water was safe for his health. Oliver Blackwell responded by saying, "We know of no evidence that the water would be harmful to you." It has been alleged that Champion did have evidence that toxic dioxins were a potential threat to the Pigeon River.

Concern 4

After studies revealed that dioxin was in the Pigeon River, did Champion show sensitivity to those downstream? Despite the fact that only a few very young fish could be found for the sample taken for testing and that more extensive studies were forthcoming, Oliver Blackwell responded to the findings by stating, "Do you know what that's like? That's less than .17 hundredths of a second in 32,000 years. That's the quantity you're talking about." Was this an ethical response to people downstream only a few days after EPA Administrator Bruce Barrett had stated to the press that dioxin is "an extremely toxic waste product for which there are no safe minimum levels for humans"?

Concern 5

Was it ethical for Oliver Blackwell to make the following statement to the press in Knoxville? "The fish population is recovering. I would be willing to drink water from the Pigeon River as it flows into Tennessee after it passed through a typical municipal water treatment plant." This statement was made only days after a survey revealed that the small community of Hartford, Tennessee, (population 500) has a cancer mortality rate ten times the national average. During the past 20 years, 167 cancer deaths have occurred there. Tests performed in 1987 by the Tennessee Health Department found tannins and lignins (byproducts of Champion's Canton mill) in wells of Hartford residents. During this 20-year period, some residents who utilized these wells for drinking water died of cancer. With that kind of anxiety affecting people of the region, did Oliver Blackwell show any sensitivity for their concerns? Was he being "open and truthful" about drinking the water, even when the town of Canton, with its pristine river, recently asked for tougher pollution standards upstream from the mill?

Concern 6

A. Given the severe degradation of the Pigeon River, was it ethical for Bob Phillips, Champion's communications director in Canton, to respond to the State of Tennessee's request that Champion reduce its chemical discharge into the Pigeon by stating, "Our operations meet applicable North Carolina regulations as approved by the federal government. This is a highly effective waste treatment facility, and we are proud of its operation."? These are the kinds of comments which have infuriated so many Tennesseans. How could a company profess to be "proud" of an operation which results in a smelly, black, foam-covered river which is unusable? Does this represent Champion's goals of being "open and truthful" and demonstrating "honesty and integrity in dealing with the company's various constituencies..."?

B. During the same commentary by Phillips, was it ethical for him to state, "We do not presume to advise the State of Tennessee how to conduct its operation any more than we would presume to advise North Carolina."? Tennessee, despite 80 years of pollution from Champion, was essentially told by the company to mind its own business. Are the above statements by Champion examples of "We take particular pride in this company's record of compliance with the spirit as well as the letter of all environmental regulations."?

C. Another statement to the press by Phillips appeared to reveal Champion's insensitive attitude to those downstream from the mill by claiming that the river's color problem had been exaggerated by critics. Phillips said, "It looks darker in the river than it really is. If you took it out and put it in a glass, it would look like weak iced tea." First, this is not the case during the summer at which time a glass of Pigeon River water looks like a cola. Second, this is irrelevant to the desired activities of people on a river such as fishing, boating, swimming, and other recreational activities.

Concern 7

Was Champion "open and truthful" to refuse to participate in any of the numerous forums and panel discussions held by the various media in Asheville, Canton, and Knoxville? In each case Champion was invited but did not attend. In some cases Champion told the media they would participate, then failed to appear.

Concern 8

Was Champion ethical in embracing the Haywood County Economic Development Association's pro-Champion campaign slogan entitled "Our River, Our Jobs, Our Future"? This slogan created an enormous amount of anti-Champion sentiment in Tennessee, since it implied that Champion claims to "own" the Pigeon River.

Concern 9

Was it ethical for Dick Diforio, Champion's vice-president and director of environmental affairs, to report to the public that the firm is not responsible for the foam on the Pigeon River, instead, blaming it on the municipalities of Waynesville and Clyde, North Carolina?

When asked if foam ever appeared in the Pigeon River below the mill, Oliver Blackwell said, "Yes we have seen foam in the river, but the Canton mill does not contribute to the foam that we see and that you see." It is noteworthy that the Pigeon River above the mill is clear of foam, yet below the mill it is covered with foam. Also, it is revealing that Champion has recently agreed to a permit which requires "no visible foam." Why would Champion agree to such a permit if the firm was not directly responsible for the foam? Again, was this an example of "honesty and integrity" and being "open and truthful"?

Concern 10

Was Champion ethical to use threats to shut down the mill and use analogies of a "nuclear bomb" exploding in the region? This ploy caused Champion to be accused of holding Western North Carolina economic hostage as well as inciting the local citizenry. Champion officials in Canton created an atmosphere of almost hysteria, which led to death threats and loss of personal freedoms (see Concern 11). Rather than being viewed as a positive, "can-do" company, Champion's constant threat of shutting down the plant resulted in the firm being perceived in Tennessee as a whining, obstinate, "cannot-do" firm.

Concern 11

One of the most basic rights granted by our nation's Constitution is that of freedom of speech. In light of our nation's celebration of the 200th anniversary of its Constitution, was it ethical for Oliver Blackwell to berate the media, to criticize those who offered differing public opinions, and in general, to create an atmosphere of fear and anxiety in which constitutional rights in Canton and the surrounding vicinity were practically eliminated for those speaking-out against the pollution of the river?

A. At a speech to the Waynesville Rotary Club Blackwell stated, "If you assume, as I am now ready to assume, that the harping, the complaining, the grandstanding, and the bitching by all of those who claim to know more about this (color) than we do is never going to stop, then why should we risk the money to modernize this mill?" Is this a good example of "The Champion Way" in action?

B. In the same speech, Blackwell seemed to almost blame Champion's environmental problems on complaining citizens and the media when he stated, "I am afraid any permit, with any color number in it, will not stop these so-called broad-based citizen action groups, the politicians who listen to them, and a news media that is hooked on controversy from complaining about our operation."

C. Blackwell also gave the Rotary Club the same message he had given his employees, which "was to tell the public in Western North Carolina and Eastern Tennessee that we have had enough of the public criticism about our environmental efforts. The people in Eastern Tennessee and Western North Carolina had better decide they want us to stay here and support us. Champion can live without this operation in Haywood County." Are threatening remarks such as these an example of "The Champion Way"?

D. Blackwell also stated in a newsletter to Champion employees a demand that the media "stop complaining about our operation." Before it could even be published, Blackwell told his employees that a story to run in the Waynesville Mountaineer about his speech to the Rotary Club would "probably be full of errors." The Mountaineer, of course, has been a strong supporter of Champion throughout this pollution controversy.

E. Given the hysteria whipped up in the community by Oliver Blackwell's inflammatory remarks to his employees and the media, is Champion not responsible for a 79-year-old gentleman, Dick Mullinix, being run out of town from constant death threats? This elderly man, who is retired from a paper company, was simply exercising his constitutional right to free speech in calling on Champion to clean up the river. Given the number and severity of death threats he and his wife received in the middle of the night, they eventually felt compelled to move to Florida.

F. The atmosphere in the community created by Champion was at least indirectly responsible for an embarrassing incident involving an elementary school teacher in Canton who had celebrated our nation's bicentennial celebration of the Constitution by having each of her students demonstrate their right to free speech in designing posters to place in the classroom. Some of the children drew pictures of the Pigeon River with captions calling for it to be cleaned up.

According to media reports, the following episode transpired. One of the parents, a Champion employee, complained about the poster to the superintendent of schools. The superintendent brought this to the principal's attention, and the principal instructed the teacher to take the posters down. The teacher stated that she could not since it would defeat her lesson to the students regarding constitutional rights and freedom of speech. The superintendent, principal, and others proceeded to tear the posters off the classroom bulletin board. The teacher had to tearfully explain to her students that the episode proved that not all constitutional rights were allowed in this community. It is also our understanding that the teacher's job was threatened until she retained an attorney.

G. Once death threats were made, not only to Mr. Mullinix but also to officials in Newport and Cocke County, did Champion do everything in its power to stop them? The tone of comments made to the media did not seem to indicate a change. It is our understanding that Blackwell downplayed the seriousness of the death threats by stating that these were simply people frightened by the prospects of losing their jobs.

Concern 12

Even after the recent EPA test of dioxin below the Canton mill found 93 parts per trillion in whole fish, which according to EPA officials is "the second-highest level found in whole fish tested in the United States," Oliver Blackwell responded by stating that these amounts are very small, comparing it to "93 seconds in 32,000 years." With all the anxiety over the unusually high rate of cancer in residents who live along the Pigeon River, these statements are received the same as if someone said "I only put one teaspoon of rat poison in your gallon of milk; what are your complaining about?"

We feel a professional, "Champion Way" reaction to the finding of dioxins in the river would be more in line with "We at Champion are looking forward to converting our mill to oxygen delignification which we feel will eliminate most of the dioxin by-product. We want the Pigeon River to be dioxin-free, and we intend to work toward that goal."

Concern 13

Based on discussions with officials in Cocke County, Tennessee, we understand that Champion officials have been observed on numerous occasions taking water samples from the Pigeon River in Tennessee where Big Creek, a clean, pristine mountain stream, enters the river from the west. Obviously, if this is indeed the case, the sample would not be meaningful and would not be an example of "honesty and integrity." Only samples taken from the middle of the river directly below the Walters Power Plant discharge at the Tennessee state line provide a meaningful measurement of the quality of water Champion is sending into the State of Tennessee.

Concern 14

When EPA scheduled nine-hour public hearings to be held in Asheville and Knoxville, EPA requested that Cocke County area residents and clean river supporters not attend the Asheville hearing and that Champion supporters not attend the Knoxville hearing. According to the media, a "gentlemen's agreement" between river supporters and Champion was made to honor EPA's request. Consequently, river supporters did not attend the Asheville hearing. However, a week later, Champion chartered 55 buses to bring an estimated 2,200 Champion supporters to the Knoxville hearing. Several of the Champion supporters interviewed at the hearing stated that they had been required by their supervisors to attend the meeting and were being paid the same wages they would have earned if they had reported for their regular shift at the mill. Not only were box lunches provided, but so were meal tickets to buy food at the Civic Coliseum in Knoxville. Oliver Blackwell defended the action stating that the employees would have all driven to Knoxville anyway, so providing buses was safer. He also admitted that EPA had requested that they not attend the Knoxville meeting.

Concern 15

The evening prior to the public hearing in Knoxville, unknown persons vandalized a billboard on private property in Cocke County. The billboard, which read "Look: Pigeon River Just Ahead. Polluted by Champion International Corp. Lord Help Us, E.P.A. Won't," was painted over in black and damaged by shotgun blasts. It has been reported that Oliver Blackwell promised to pay the property owners $500 to cover the damage. However, when Cocke County officials requested the money, Blackwell refused and thus reneged on his promise. Again, this kind of action does not support being "truthful" or having "honesty and integrity."

Concern 16

Despite numerous and extensive studies by the States of Tennessee and North Carolina which concluded that the Pigeon River is severely degraded below the mill, it is our understanding that Champion proceeded to pay $250,000 for yet another study which appeared to basically conclude that the river in Tennessee is in good condition and that aquatic life is not negatively impacted. In scientific circles this "study" was considered a travesty. To quote from Pigeon River Investigation published in 1980 by the North Carolina Department of Natural Resources and Community Development, "The Pigeon River from Canton, North Carolina, to its confluence with the French Broad River in Tennessee is adversely affected by the individual discharge from Champion International Paper Corporation. The use potential of the river is thereby restricted for water supplies and recreational activities. The Pigeon River, downstream from the Champion Paper Company's effluent discharge, is severely degraded...and presently has a carp-catfish ecological classification."

Furthermore, there are allegations that statements made in the Champion "study" would have to involve fish and water samples being taken in Tennessee. However, the Tennessee Wildlife Resources Agency and Tennessee Health Department which issued permits authorizing the collection of samples maintain that certain provisions of the permits were violated. Critics have also charged that given the extensive studies already on record, the money involved should have been spent on pollution-control equipment.

Concern 17

During the summer of 1987, Champion spent $2,000 on rainbow trout to feed the entire North Carolina State Legislature. According to Charles "Skeeter" Curtis, community relations director at the Canton mill, "We felt like, being a good corporate citizen, it was the proper thing to do." Critics charge that since the Pigeon River above the mill is full of trout and below the mill it is devoid of trout, this expenditure was a very arrogant and insensitive action to take during the middle of great controversy over the mill's pollution of the river. Many said the firm was revealing its hypocrisy in attributing this expenditure to being "a good corporate citizen," since the support from North Carolina politicians to allow Champion to continue to pollute was actively sought. Opponents said the money could have been better spent to clean up the Pigeon River to a condition that would allow game fish to survive below the mill.

Concern 18

When ABC affiliate WLOS-TV in Asheville selected Clyde, North Carolina, resident, 79-year old Dick Mullinix, as the "Person of the Week," 1,800 Champion employees in Canton called for a boycott of all businesses which advertise on the television station and flooded the station with calls of protest. According to station officials, Mullinix was an example of persons in Western North Carolina "who act on their own behalf to make a change in the community." WLOS made no suggestion that it endorsed Mullinix's views but felt that a man who had the courage to freely speak his mind about cleaning up the river was newsworthy. Champion employees Bruce Holcombe and Mike Israel spearheaded the effort by obtaining over 2,000 signatures on a petition which stated, "We the undersigned wish to show our displeasure with naming Dick Mullinix as WLOS-TV 13's Person-of-the-Week. In order to show our displeasure, we the undersigned refuse to purchase goods or services from businesses which advertise on WLOS-TV." The Canton Board of Mayor and Aldermen approved a resolution condemning the station for making its selection.

Critics charge that WLOS's selection should have been viewed simply for what it was—a feature story—and nothing else. It was shortly after this incident that Mr. Mullinix and his wife began to receive even more death threats, eventually forcing them to leave their home. It was also at this time that many Tennessee residents began to compare living in Western North Carolina to living in Nazi Germany prior to World War II where freedom of speech did not exist. Again, given that Champion held its employees economic hostage during the EPA permit negotiations, was the firm not responsible for this unfortunate episode?

Concern 19

During the EPA hearings in Knoxville, a troop of cub scouts was testifying that they wanted to see the river cleaned up. One little boy commented that he hoped more fish could live in the river because "I have eaten one, and it sure tasted good." The boy's comment prompted most of the 2,000 Champion employees to stand and cheer. Obviously, this little boy did not intend to imply the river was clean and healthy, and the outburst by the Champion entourage did little to promote "The Champion Way."

Concern 20

It is understood that following the second EPA public hearing, Champion sent a video to EPA which purported to be a "summary" of the two public hearings in Asheville and Knoxville. Yet, despite nine hours of testimony in Knoxville in support of cleaning up the river, the tape showed only the last person to speak who happened to be a Champion employee. Was this an example of "honesty and integrity" and being "open and truthful" to state that the tape represented a "summary" of comments made at both public hearings?

Concern 21

It has been alleged that Champion officials took defoamer chemicals to the Waynesville, North Carolina, Municipal Water Treatment Plant and ordered plant workers to put the chemicals into the river.

Concern 22

During the summer of 1987 when Cocke County residents had scheduled the "Brown River Boat Float" to show the media what it was like to float down a polluted river, the Carolina Light and Power Walters Station shut down all generators. This action completely terminated the flow of the river just prior to the scheduled float. It has been alleged that Champion, which purchases a substantial amount of power from Carolina Light and Power, asked the plant to shut down its generators so the float could not take place. This allegation cannot be verified; however, the media reported it as the likely cause for the river's limited flow. Once again, Champion appeared on the media as "the heavy," which is certainly not in line with "The Champion Way." Also, the media seized the opportunity to take their cameras out into the middle of the streambed and give their viewers a close-up look at the black boulders and the horrendous buildup of sludge on the riverbottom.

Concern 23

It has been reported that Champion paid tens of thousands of dollars to consultants to orchestrate and stage many of the "pro-Champion" events, such as parades, slogans, petition drives, public hearings, and phone-call campaigns. It was further reported that floats representing some schools were actually built by workers hired by consultants. If true, could Champion not speak for themselves? Again, was it ethical to spend money in this area when it could have been spent for pollution-control equipment?

Concern 24

It has been reported that Champion contacted suppliers, other businesses, other paper firms, and politicians in states outside of Tennessee and North Carolina to bring pressure on regulatory agencies to weaken the required discharge permit. While Senator Albert Gore was campaigning for president in North Carolina, it was reported that Gore was observed getting into a limousine with Oliver Blackwell. It was also reported that Vice-President George Bush spent time at Champion's private lake, an outstanding fishery which is located upstream of the effluent discharge. Critics contend that it was unethical for Champion to refuse to participate in public discussions concerning the degradation of the Pigeon River while allegedly applying substantial pressure on suppliers, politicians, and government agencies to issue a permit favorable to the company.

Concern 25

It has been alleged that Champion supporters asked needy elderly people to sign petitions in support of the company while providing them with a Christmas "Meal on Wheels" dinner. It is questionable that the meal recipients thoroughly understood what they were signing.

Concern 26

Champion appeared to embrace the many lies and untruths which were given to EPA as testimony at the Asheville public hearing. Many of the statements made by Champion supporters about the "excellent" condition and "health" of the Pigeon River were so blatantly false that a number of North Carolina residents reportedly stated they were embarrassed by the proceedings.

Concern 27

Concerns over dioxins in the Pigeon River below the Canton mill did not surface until the environmental organization Greenpeace released findings from past studies performed with the cooperation of the American Paper Institute.

Based on reports from the media and statements made by Oliver Blackwell pertaining to these studies performed on rivers below papermills, it is alleged that Champion had every reason to suspect that dioxins were present in the Pigeon River below the Canton mill. Yet Champion did not notify residents downstream of this potential health hazard. In fact, even after dioxins were discovered, Oliver Blackwell has continued to soft-pedal the findings. If Champion did, in fact, suspect that dioxins were present, why was the firm not "open and truthful" and demonstrate "scrupulous regard for safety and health"?

Concern 28

Perhaps Champion's most unethical act of all involves 80 years of continued damage to the residents of Newport and Cocke County, Tennessee, which is a textbook case of an external diseconomy. As the enclosed study reveals, Champion's pollution of the Pigeon River is having a diseconomic impact on this community of several million dollars per year from lost recreational revenues alone. Not one time has Champion, to anyone's knowledge in our region, shown any remorse or offered to compensate its victims for this cumulative damage.

We would simply ask that you closely examine the enclosed vials containing samples of Pigeon River water—one taken from just upstream of the Canton mill and the other taken just downstream from the Canton mill. Please remove the caps and smell the water as well. Then try to empathize with East Tennesseans who have had their intelligence insulted by continuous statements from Champion officials who refuse to publicly acknowledge the deplorable condition of the Pigeon River below the mill.

Many of these concerns are now literally "water down the stream" since Champion has agreed to a three-year clean-up program. Champion, however, still has a wonderful opportunity to join with Cocke County in looking forward to the day when the Pigeon River will be restored to the extent necessary to permit recovery of a fishery and allow other desired activities that can be enjoyed from the use of an unpolluted mountain river. Relatively speaking, it would cost Champion mere pennies to provide financial support for building picnic tables, boating access points, and riverside parks; however, such a gesture would go a long way in demonstrating that "The Champion Way" is more than just words.

A REPORT ON POLICY AND PRACTICE IN COMPANY CONDUCT

Corporate Ethics:
A Prime Business Asset

The
Business
Roundtable

February
1988

THE CORPORATE VALUES PROGRAM AT CHAMPION INTERNATIONAL CORPORATION

Among the many elements of The Champion Way, *honesty and integrity* in dealing with the Company's various constituencies stands out as being understood and practiced throughout the Company. As perceived by the executives interviewed, this element has been implemented better and in ways that permeate the whole organization more thoroughly than most other facets of The Champion Way.

The influence of other aspects of The Champion Way are also affirmed. In particular, Champion is perceived as taking actions that mark it as "*a good corporate citizen*." This is demonstrated in the way its operating units support community enterprises, in the ways employees are encouraged to participate in community activities, in the careful handling of health and safety aspects of mill and timberlands operations, in seeking to provide for equal opportunity in employment, in taking on increasing responsibilities for overcoming environmental pollution, and in corporate relations with unions.

* Andrew C. Sigler, chief executive officer of Champion International, is chairman of the Corporate Ethics Project with the Business Roundtable.

The Champion Way Statement

Champion's objective is leadership in American industry. Profitable growth is fundamental to the achievement of that goal and will benefit all to whom we are responsible: shareholders, customers, employees, communities, and society at large.

Champion's way of achieving profitable growth requires the active participation of all employees in increasing productivity, reducing costs, improving quality, and strengthening customer service.

Champion wants to be known for the excellence of its products and service and the integrity of its dealings.

Champion wants to be known as an excellent place to work. This means jobs in facilities that are clean and safe, where a spirit of cooperation and mutual respect prevails, where all feel free to make suggestions, and where all can take pride in working for Champion.

Champion wants to be known for its fair and thoughtful treatment of employees. We are committed to providing equality of opportunity for all people, regardless of race, national origin, sex, age, or religion. We actively seek a talented, diverse, enthusiastic workforce. We believe in the individual worth of each employee and seek to foster opportunities for personal development.

Champion wants to be known for its interest in and support of the communities in which employees live and work. We encourage all employees to take an active part in the affairs of their communities, and we will support their volunteer efforts.

- **Champion** wants to be known as a public-spirited corporation, mindful of its need to assist – through volunteer efforts and donated funds – non-profit educational, civic, cultural, and social welfare organizations which contribute uniquely to our national life.
- **Champion** wants to be known as an open, truthful company. We are committed to the highest standards of business conduct in our relationships with customers, suppliers, employees, communities, and shareholders. In all our pursuits we are unequivocal in our support of the laws of the land, and acts of questionable legality will not be tolerated.
- **Champion** wants to be known as a company which strives to conserve resources, to reduce waste, and to use and dispose of materials with scrupulous regard for safety and health. We take particular pride in this company's record of compliance with the spirit as well as the letter of all environmental regulations.

Champion believes that only through the individual actions of all employees – guided by a company-wide commitment to excellence – will our long-term economic success and leadership position be ensured.

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An Economic Impact Analysis on the Recreational Benefits of a Restored Pigeon River

and

A Financial Analysis of Champion International Corporation's Ability to Provide for a Clean Pigeon River

by

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An Economic Impact Analysis on the Recreational Benefits of a Restored Pigeon River

Overview

The Pigeon River rises from the Shining Rock and Middle Prong Wilderness Areas in North Carolina flowing northwest into Tennessee. The river carves a deep gorge through the mountains, crossing the Appalachian Trail at the northeastern edge of the Great Smoky Mountains National Park (an International Biosphere Reserve). Since 1908 when the Champion Paper and Fiber Company (now Champion International Corporation) opened their papermill on the Pigeon, 60 of the river's 80 miles from Canton, North Carolina to Douglas Lake in Tennessee have been severely polluted. At present, the river is murky and smelly and is virtually devoid of game fish. Consequently, the river's recreational use is extremely limited, compared to the recreational opportunities and appeal presented by a clean mountain river.

Supply and Demand with Externalities

Champion's pollution of the Pigeon River is an example of what economists refer to as an external diseconomy, which occurs when one firm's use of a resource damages other people who cannot obtain proper compensation. When this happens our free market economy malfunctions somewhat because the firm bears only part of the full cost of that resource, and the outcome is usually not in the best interest of society as a whole.

When an external diseconomy occurs in the marketplace, such as Champion's pollution of the Pigeon River, economists generally agree that direct government regulation is justifiable and the simplest means to change the outcome for society. The externality situation with Champion is depicted in Figure 1. The upward-sloping MSD and MPD lines reflect the incremental damage done to property and people as a result of the pollution produced by Champion. The lower line is the marginal damage, if any, actually incurred by the firm, and is the marginal private damage. The higher line is the total or social marginal damage, including damages to those who are hurt by the pollution but are not compensated for their suffering.

The downward-sloping MCA measures the marginal cost of pollution abatement--how much the company would have to pay to cutback pollution. The present market outcome without federal government intervention comes where the firm balances its own private marginal costs and benefits at point A. At this point, the marginal social damage (dollar amount X) from pollution is greater than the marginal cost of abatement (dollar amount Y). For example, as the accompanying financial analysis report reveals, if Champion spends $60 million in 1987 on capital to control pollution, their projected earnings would be reduced by $7.8 million, or 8 cents per share from $2.65 to $2.57. The social damage, as measured by the economic impact a clean Pigeon River would bring to Western North Carolina and especially Eastern Tennessee, would be expected to exceed that amount.

The efficient point comes at point B where marginal social damages are equated to the marginal cost of abatement. If the Environmental Protection Agency provides for a permit which restores the Pigeon River to a condition suitable for recreational use, the outcome would move from its present point A to point B. The remainder of this economic impact report assumes a Pigeon River cleaned up to such a standard.

Supply and Demand with Externalities-
The Case of Champion's Pollution of the Pigeon River

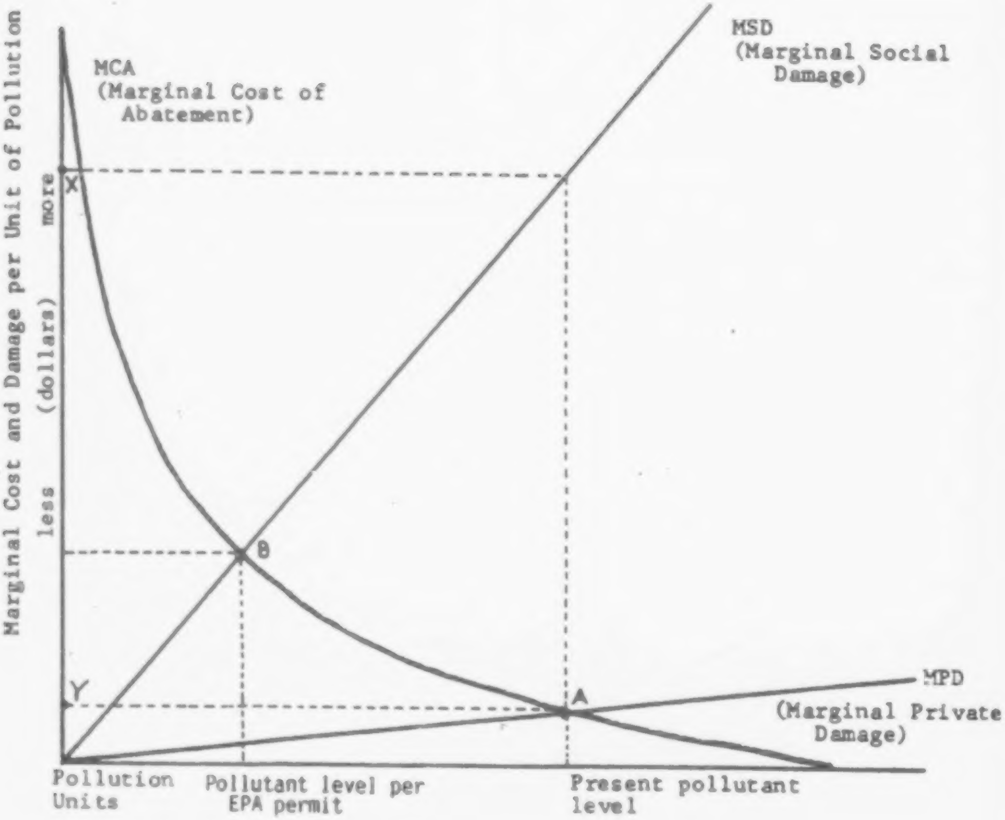

FIGURE 1

Recreational Values

Although the Pigeon River's present state of condition in Tennessee results in very little use for water supply or recreation, it has been demonstrated that a clean mountain river can have a significant economic impact on a region. For example, recreational use on Tennessee's Hiwassee and Ocoee Rivers now exceed 115,000 and 112,000 annual visitors respectively, and the use on North Carolina's Nantahala River now stands at 133,000 annual visitors. In 1981, an economic impact study on the Nantahala River in Swain County, North Carolina found that recreational use of the river provided direct benefits of nearly $2 million in annual sales and 295 jobs.

As outstanding as the three above-mentioned rivers are for recreational use, the Pigeon River has been rated as having even greater potential if cleaned up. Canoe guidebooks such as A Canoeing and Kayaking Guide to the Streams of Tennessee by Sehlinger and Lantz provide comprehensive rating data on such categories as scenery and whitewater rapids. The Pigeon in Tennessee is rated as "exceptionally beautiful" in terms of surrounding scenery, which surpasses the ratings given to the Ocoee and the Hiwassee. In terms of whitewater rapids, the Pigeon's upper five mile run is rated at 19 points, and the lower six mile run is rated at six points. The rating of 19 points exceeds the Nantahala's 17 points and the Hiwassee's 12. A unique characteristic of the Pigeon for floating purposes is that the upper run contains the thrilling type of whitewater which floaters enjoy on the Ocoee and the Nantahala, while the lower part of the Pigeon is ideal for family floating typically observed on the Hiwassee.

The accessibility of the Pigeon River with I-40 nearby exceeds that of the other aforementioned streams. Also given the fact that the boundary of the Great Smoky Mountains National Park closely parallels the upper run of the Pigeon River from the Tennessee state line, and the National Park Service campground at Big Creek is only two miles from the floater's put-in site for the upper whitewater run, the recreational potential is further enhanced.

The practice of assigning values to extramarket goods such as recreation has become routinely accepted during the past 20 years and, in fact, operating agencies have been directed to assign these values whenever possible. When a full-scale study is neither possible nor feasible, the most common method for determining recreational values is the Unit Day Value (UDV) Method, in which informed opinions and judgments are made to approximate the average willingness to pay of users of recreation resources. This method is used by government agencies such as the Tennessee Valley Authority. By applying a carefully thought-out and adjusted unit day value to estimated use, an approximation is obtained that may be used as an estimate of project recreation benefits. Guidelines used for establishing values are taken from the Water Resources Council Federal Register.

There are two types of recreation days to be evaluated, general and specialized. The general category includes those activities such as picnicking, camping, hiking, riding, cycling, fishing, and hunting. The special category includes any activities for which the opportunities are limited, for which a high degree of skill, knowledge, and appreciation by the user may be involved, or which may involve a large personal expense for the user. In the case of the Pigeon River, the specialized activity would consist of whitewater rafting, kayaking, and canoeing. Given the data available for recreational activities on nearby similar mountain rivers such as the Hiwassee, Nantahala, Ocoee, and Norris tailwaters (for fishing), the recreational activities projected for the Pigeon River were subdivided into the following activities: (1) commercial raft floating, (2) other watercraft (canoes, kayaks), (3) fishing, and (4) other general recreation.

Commercial Raft Floating

The existing data reveal that floating is increasing at the rate of 20 percent annually on the Ocoee and Hiwassee, while it has leveled off on the Nantahala at 133,000 annual visits. The Nantahala had experienced a similar growth rate until visitation reached 125,000 annually and began to level off. Statistics kept on these three streams reveal that approximately 60 percent of float use is by commercial rafting with an average cost to the participant of $21. For the Pigeon River, a use of 34,560 is projected for 1988 which is only 31 percent of the current average use on the Ocoee, Hiwassee, and Nantahala. A ratio of 50 percent is used for the proportion of commercial rafts on the Pigeon, which is 10 percent below the average for the other three streams. Finally, a figure of $20 is used for the expenditure, which is below the average cost of the other three streams. The direct benefit for 1988 is therefore calculated at 17,280 commercial raft trips which when multiplied by $20, equals $345,600. The floating use patterns are projected to increase at a growth rate of 19 percent, which is slightly below those experienced at the other streams, until a leveling off occurs above 110,000 visits.

Other Floating (other watercraft such as canoes and kayaks)

The use is calculated to be 50 percent of all floating. In order to arrive at a value, the Water Resources Council's Table VIII-3-3 was utilized for special recreation, of which whitewater canoeing and kayaking is an example. A total of 62 points was assigned out of a possible of 100. The breakdown was as follows:

a) Recreation experience:	10 out of 30
b) Availability of opportunity:	12 out of 18
c) Carrying capacity:	10 out of 14
d) Accessibility:	12 out of 18
e) Environmental quality:	18 out of 20

Table VIII-3-3—Guidelines for Assigning Points For Special Recreation

Criteria	Judgment factors				
(a) Recreation experience [1]	Heavy use or frequent crowding or other interference with use	Moderate use, other users evident and likely to interfere with use	Moderate use, some evidence of other users and occasional interference with use due to crowding	Usually little evidence of other users, rarely if ever crowded	Very low evidence of other users, never crowded
Total points: 30 Point value:	0-4	5-10	11-16	17-23	24-30
(b) Availability of opportunity [2] Total points: 18	Several within 1 hr. travel time; a few within 30 min. travel time	Several within 1 hr. travel time; none within 30 min. travel time	One or two within 1 hr. travel time; none within 45 min. travel time	None within 1 hr. travel time	None within 2 hr. travel time
Point value:	0-3	4-6	7-10	11-14	15-18
(c) Carrying capacity [3]	Minimum facility development for public health and safety	Basic facilities to conduct activity(ies)	Adequate facilities to conduct without deterioration of the resource or activity experience	Optimum facilities to conduct activity at site potential	Ultimate facilities to achieve intent of selected alternative
Total points: 14 Point value:	0-2	3-5	6-8	9-11	12-14
(d) Accessibility	Limited access by any means to site or within site	Fair access, poor quality roads to site; limited access within site	Fair access, fair road to site; fair access, good roads within site	Good access, good roads to site; fair access, good roads within site	Good access, high standard road to site; good access within site
Total points: 18 Point value:	0-3	4-6	7-10	11-14	15-18
(e) Environmental quality	Low esthetic factors [5] exist that significantly lower quality [4]	Average esthetic quality; factors exist that lower quality to minor degree	Above average esthetic quality; any limiting factors can be reasonably rectified	High esthetic quality; no factors exist that lower quality	Outstanding esthetic quality; no factors exist that lower quality
Total points: 20 Point value H	0-2	3-6	7-10	11-15	16-20

[1] Value for water-oriented activities should be adjusted if significant seasonal water level changes occur.
[2] Likelihood of success at fishing and hunting.
[3] Value should be adjusted for overuse.
[4] Major esthetic qualities to be considered include geology and topography, water, and vegetation.
[5] Factors to be considered to lowering quality include air and water pollution, pests, poor climate, and unsightly adjacent areas.

The Council's Table VIII-3-1 was used to convert the points to dollar values. A rating of 62 point equates to a value of $11 in 1982 dollars. This was adjusted to the 1987 Consumer Price Index to a value of $12.94. Thus, the direct benefit for 1988 for this category is calculated by multiplying 17,280 visits times $12.94, which equals $223,603.

Table VIII-3-1—Conversion of Points to Dollar Values

Activity categories	Point values										
	0	10	20	30	40	50	60	70	80	90	100
General recreation (Points from Table VIII-3-2)	1.60	1.90	2.10	2.40	3.00	3.40	3.70	3.90	4.30	4.60	4.80
General fishing and hunting (Points from Table VIII-3-2)	2.30	2.60	2.80	3.10	3.40	3.70	4.10	4.30	4.60	4.70	4.80
Specialized fishing and hunting (Points from Table VIII-3-3)	11.20	11.50	11.70	12.00	12.30	13.50	14.70	15.60	16.80	18.00	19.00
Specialized recreation other than fishing and hunting (Points from Table VIII-3-3)	6.50	6.90	7.40	8.00	8.50	9.60	10.60	12.80	14.90	17.00	19.00

Note.—Adjust dollar value for subsequent years to reflect changes in the Consumer Price Index after July 1, 1982.

Fishing

The standard value utilized by government agencies for fishing visits is $17. Tennessee Wildlife Resource Agency (TWRA) officials interviewed projected an outstanding put-and-take fishery, similar to that of the Hiwassee, which would generate substantial use if the Pigeon River is cleaned up. A creel survey on the Hiwassee is presently underway by the TWRA; however, the most recent use data available is the survey TWRA performed in 1973-1975, which found use increasing to 26,653 visits in

1975. TWRA officials estimate that current use is larger. A creel survey performed by TVA during the past four years on a similar, though larger fishery at Norris tailwaters, found the following use and expenditures:

	1982	1983	1984	1985	1986
USE	20,282	21,960	37,200	37,440	46,746
BENEFITS	$344,760	$373,320	$632,000	$636,480	$794,682

A conservative use figure for a put-and-take fishery on the Pigeon River for 1988 of 12,597 visits has been projected. This use is only 47 percent of the actual use surveyed 12 years ago on the Hiwassee. A growth rate of eight percent is projected. For 1988, the direct benefit is calculated by multiplying $17 times the projected use of 12,597, which equals $214,149.

Other Kinds of General Recreation

This category basically includes visits for such activities as sightseeing, hiking, picnicking, camping, and observing floaters.

The Water Resources Council's Table VIII-3-2 was utilized for assigning points for the general recreation (other than fishing) category for use on the Pigeon River. The category was ranked at 64 points out of a possible 100 points. The breakdown was as follows:

a) Recreation experience:	26 out of 30
b) Availability of opportunity:	5 out of 18
c) Carrying capacity:	6 out of 18
d) Accessibility:	11 out of 14
e) Environmental quality:	16 out of 20

Table VIII-3-2—Guidelines for Assigning Points For General Recreation

Criteria	Judgment factors				
(a) Recreation experience [1]	Two general activities [2]	Several general activities	Several general activities; one high quality value activity [3]	Several general activities; more than one high quality high activity	Numerous high quality value activities; some general activities
Total points: 30 Point value:	0–4	5–10	11–16	17–23	24–30
(b) Availability of opportunity [4]	Several within 1 hr. travel time; a few within 30 min. travel time	Several within 1 hr. travel time; none within 30 min. travel time	One or two within 1 hr. travel time; none within 45 min. travel time	None within 1 hr. travel time	None within 2 hr. travel time
Total points: 18 Point value:	0–3	4–6	7–10	11–14	15–18
(c) Carrying capacity [5]	Minimum facility development for public health and safety	Basic facilities to conduct activity(ies)	Adequate facilities to conduct without deterioration of the resource or activity experience	Optimum facilities to conduct activity at site potential	Ultimate facilities to achieve intent of selected alternative
Total points: 14 Point value:	0–2	3–5	6–8	9–11	12–14
(d) Accessibility	Limited access by any means to site or within site	Fair access, poor quality roads to site; limited access within site	Fair access, fair road to site; fair access, good roads within site	Good access, good roads to site; fair access, good roads within site	Good access, high standard road to site; good access within site
Total points: 18 Point value:	0–3	4–6	7–10	11–14	15–18
(e) Environmental quality	Low esthetic factors [6] exist that significantly lower quality [7]	Average esthetic quality; factors exist that lower quality to minor degree	Above average esthetic quality; any limiting factors can be reasonably rectified	High esthetic quality; no factors exist that lower quality	Outstanding esthetic quality; no factors exist that lower quality
Total points: 20 Point value:	0–2	3–6	7–10	11–15	16–20

[1] Value for water-oriented activities should be adjusted if significant seasonal water level changes occur.

[2] General activities include those that are common to the region and that are usually of normal quality. This includes picnicking, camping, hiking, riding, cycling, and fishing and hunting of normal quality.

[3] High quality value activities include those that are not common to the region and/or Nation and that are usually of high quality.

[4] Likelihood of success at fishing and hunting.

[5] Value should be adjusted for overuse.

[6] Major esthetic qualities to be considered include geology and topography, water, and vegetation.

[7] Factors to be considered to lowering quality include air and water pollution, pests, poor climate, and unsightly adjacent areas.

The Council's Table VIII-3-1 was used to convert the points to dollar values. A rating of 64 points equates to a value of $3.80 in 1982 dollars. This was adjusted to the 1987 Consumer Price Index to a value of $4.47.

A survey of the U. S. Forest Service on recreational use of the Hiwassee River found that overall use increased from 1985 to 1986 by 20 percent to 115,748 visitors, with general recreation activities such as sightseeing, hiking, picnicking, camping, and other activities consisting of approximately 17,000 visitors. Whitewater rivers such as the Nantahala, Ocoee, and Hiwassee draw significant numbers of visitors coming only to observe floaters running rapids.

Given the proximity of the Great Smoky Mountains National Park which receives 11 million visitors per year, it is projected that a clean Pigeon River would attract a use figure in the range of 85 to 88 percent of the present general, non-fishing recreation visits the Hiwassee receives. For 1988, the direct benefit is calculated by multiplying $4.47 times 15,115 visits to equal $67,564.

Projected Benefits

Table 1 depicts the projected direct benefits and economic impact from recreational use of a clean Pigeon River for the years 1988 through 1997. Direct benefits measure actual expenditures to be made, while economic impact measures the "rippling effect" or "multiplying effect" these direct expenditures have in a regional economy. For example, assume a visitor spends $20 for a commercial raft trip. The commercial outfitter may now take a portion of that $20 and buy some equipment at a local hardware store. The store manager then spends part of that income

Direct Benefits and Economic Impact From Projected Recreational Use of a Clean Pigeon River for the Period 1988-1997.

Activity and Totals	1988		1989		1990		1991	
	Use	Direct Benefit	Use	Direct Benefit	Use	Direct Benefit	Use	Direct Benefit
Commercial raft floating	17,280	$345,600	20,736	$414,720	24,883	$497,660	29,860	$597,200
Other floating	17,280	223,603	20,736	268,324	24,883	321,986	29,860	386,388
Fishing	12,597	214,149	13,605	231,285	14,693	249,781	15,869	269,773
Other general recreation	15,115	67,564	16,325	72,973	17,630	78,806	19,041	85,113
Total direct benefits		850,916		987,302		1,148,233		1,338,474
Total impact on economy		3,403,664		3,949,208		4,592,932		5,353,896

Activity and Totals	1992		1993		1994		1995		1996		1997	
	Use	Direct Benefit	Use	Direct Benefit	Use	Direct Benefit	Use	Direct Benefit	Use	Direct Benefit	Use	Direct Benefit
Commercial raft floating	35,832	$716,640	42,998	$859,960	51,598	$1,031,960	61,402	$1,228,040	73,068	$1,461,360	75,000	$1,500,000
Other floating	35,832	463,666	42,998	556,394	51,598	667,678	61,402	794,542	73,068	945,500	75,000	970,500
Fishing	17,135	291,346	18,509	314,653	19,990	339,830	21,589	367,013	23,316	396,372	25,182	428,094
Other general recreation	20,564	91,921	22,210	99,279	23,986	107,217	25,905	115,795	27,977	125,057	30,215	135,061
Total direct benefits		1,563,573		1,830,286		2,146,685		2,505,390		2,928,289		3,033,655
Total impact on economy		6,254,292		7,321,144		8,586,740		10,021,560		11,713,156		12,134,620

Total benefits over next 10 years:	$18,332,803
Total impact on economy:	$73,331,212

Table 1

on groceries, etc. Economists usually assume a marginal propensity to consume of .75, which results in a multiplier of 4. Thus, a $20 direct expenditure in an area would eventually be multiplied by a factor of 4, producing an overall economic impact on the economy of $80.

For the period 1988 through 1997, the projected total direct benefits derived from recreational use of a clean Pigeon River are $18,332,803, which averages $1,833,280 per year. The total economic impact equals $73,331,212, which averages $7,333,121 per year. It should be noted that these figures are in 1987 dollars and do not account for any level of inflation projections. There are also three other important points which need to be emphasized. First, this analysis examines benefits and economic impacts for only recreational use of a clean Pigeon River. There are other studies underway which will examine the economic impact a clean Pigeon River would have regarding attracting new industries, increased agricultural development, and increased real estate values. The economic impact from these areas could be substantial and far outdistance the impact derived from recreational activities. As an example, the nearby Little Pigeon River is a very clean stream, though it is smaller than the Pigeon. The Little Pigeon, during the past 10 years, has experienced substantial real estate development consisting of dozens of expensive, high quality vacation resort homes. Also, property values along the Little Pigeon have soared. Given the acknowledged outstanding natural beauty surrounding the Pigeon River and its proximity to the Great Smoky Mountains National Park, it is possible that similar real estate development would occur on the Pigeon if its waters were restored to a clean state. This development alone would have a substantial multi-million dollar impact on the local economy.

The second point which needs to be emphasized is that this analysis calculates benefits and impacts from recreational users of the river only. A 1985 study by Walsh, Sanders, and Loomis, entitled Wild and Scenic River Economics: Recreation Use and Preservation Values, found that this approach greatly undervalues a river. They conducted a study to estimate the value of 11 proposed wild and scenic rivers in Colorado and found that recreational users accounted for only 19 percent of the total estimated value of the rivers.

In the case of the Pigeon River, there are people who would derive some benefit just knowing that the river was clean and usable again. Undoubtedly, there would be some measure of benefit and impact on the North Carolina section of the river.

There are also two very important assumptions made in this analysis which must be emphasized. First, it is assumed that a "clean" Pigeon River means a river which is suitable for recreational use. Second, while there would be substantial economic benefits and impact for recreation from a clean river under the current Walter's Dam discharge scheme, it is assumed that Walter's Dam would operate a discharge scheme on weekends favorable to early morning fishing use and mid-morning to afternoon floating use, similar to that of the Hiwassee, Nantahala, and Ocoee Rivers.

A Financial Analysis of Champion International Corporation's Ability to Provide for a Clean Pigeon River

The financial strength of Champion International Corporation is unquestionably strong. The company ranks among the country's top 100 industrial firms in sales, net earnings, and total assets. Among forest product companies, Champion comes in fourth place with annual sales in excess of $4 billion and assets of $6 billion. Over the last ten years (1977-1986), Champion has reported net earnings of $1.28 billion, invested $3.69 billion in plant assets and natural resources, and paid $621 million in dividends to shareholders (49 percent of total earnings). Champion rewarded its top executives $5,790,333 in total compensation for 1986. The corporation's Board of Directors also approved a contingent compensation plan consisting of 400,000 shares of common stock (current market value approximately $15.6 million) to be earned by senior management officials over the next five years. In 1984, the company purchased St. Regis Corporation for $1.8 billion.

The majority of Champion's product lines are in good shape, and the company has made a material reduction in its cost structure over the past two years. Experts are basically in agreement these factors are likely to result in a sharp rise in earnings per share of Champion common stock for 1987, and project stable earnings for the company over the next three to five years. Even Champion's stock has received Value Line's highest ranking for performance over the next 12 months.

The pollution of the Pigeon River is presently Champion's most serious environmental concern. Champion maintains that the Environmental Protection Agency would be creating undue financial hardship on the company if required to substantially improve water quality on the Pigeon

River. The company goes as far to say that, if not changed, such a standard would force them to abandon their Canton mill. Most would agree that the necessary clean-up of the Pigeon River will not be cheap. However, there is considerable disagreement over the actual cost of such an undertaking.

Champion's own estimates relative to the initial capital outlay range from $25 million to $204 million. The company's estimates for annual operating expenditures vary from a low of $3 million to a $27 million high. Apparently, no clear determination of cost for an effective clean-up project has been determined. However, for argument, assume that a capital investment of $60 million and annual operating costs of $6 million would allow for considerable progress toward meeting acceptable water quality standards. Based upon financial projections published in the May 1, 1987, edition of Value Line relative to the performance of Champion for the current year, the following analysis presents the effect such expenditures would have on Champion's financial position and results of operations for 1987.

Adjustment of Predicted Net Earnings for New Pollution Control Facilities at Canton Mill

Predicted net earnings	$250,000,000
Depreciation on pollution control equipment (1)	(3,000,000)
Annual operating costs	(6,000,000)
Interest on debt (2)	(5,100,000)
Tax expense reduction (3)	6,345,000
Predicted adjusted net earnings	$242,245,000
Percent reduction in net earnings	3.1
Predicted primary earnings per share	$2.65
Predicted adjusted primary earnings per share	$2.57

Notes:

(1) Depreciation is computed using a 20 year useful life with no salvage value.

(2) Interest on debt is computed assuming an 8.5 percent interest rate (Champion's 1986 average cost of unsecured debt) with 100 percent unsecured debt financing.

(3) Tax expense reduction is computed using an effective rate of 45 percent.

Effect on Financial Position

The effect on the company's financial position would be nominal. Working capital would be reduced by the debt service; however, favorable tax treatment over five years for pollution control facilities and the ability to deduct interest on the debt would considerably reduce income taxes payable. Such a reduction would substantially offset the effects of debt service on working capital. However, the debt to total capitalization ratio would increase slightly.

The financial projections for 1987 appear to be reasonable and are consistent with statements made by Champion executives in the company's 1986 Annual Report. The assumption that the entire project would be financed with long-term debt is somewhat unrealistic, however. Champion has stated in its 1986 Annual Report that it plans to spend between $425 and $450 million per year for the next few years on capital projects, and that the company presently anticipates that substantially all of its capital requirements for 1987 will be funded from internal sources. Also, as reported in the Asheville Citizen-Times, "Champion has announced it will spend $120 million over the next five years to reduce the coloration in the Pigeon River by 50 percent." (This is $30 million more than the amounts assumed in the preceding analysis.) These statements indicate that Champion is capable of expending the necessary funds to substantially improve the water quality of the Pigeon River, and considerable additional debt would not be necessary for compliance.

Champion also stated in its 1986 Annual Report that its capital program is focusing on very specific projects that will bring high rates of return. With capital budgets projected in excess of $1.3 billion over a three year period, it is not unreasonable to expect Champion to invest in a project which, though not highly profitable to the company, benefits a substantial societal interest--clean water.

Financial Effect on the Canton Mill

Much has been said concerning the possibility that Champion, if forced to meet strict pollution control standards, would close the Canton mill thereby displacing thousands of workers and causing considerable economic hardship on Western North Carolina. Such drastic action on the part of Champion is not likely, however.

Champion has control of approximately one-third of the coated paper market, much of which is produced at its Canton mill. The closure of the mill would require Champion to make considerable capital expenditures to replace lost capacity if it hoped to maintain market share. Also, because of the environmental problems at the plant, a sale could take years to consummate. If not immediately sold, the idle plant would still generate fixed costs which the company would have to absorb. The fixed costs incurred from the addition of new plant and the support of idle plant could very easily exceed the reduction in variable cost a new facility would provide plus the cost of installing pollution control equipment in Canton. Such an effect would support the installation of pollution control equipment in Canton even if the installation caused the plant to report an overall accounting loss. The company obviously believes that future improvement of the Canton mill is more economically viable than construction of a new facility having already spent $48 million on an improved boiler system and having a commitment to spend an additional $220 million on improvements to its bleaching process. (It is not clear if the $120 million discussed earlier is included in the aforementioned $220 million. If so, such expenditures are likely to be made primarily for improving productivity and reducing costs, and any improvements in water quality would probably be only incidental in nature.)

Another concern of Champion is that large expenditures on pollution control facilities do not provide the company with significant returns on its investment. Canton and the Pigeon River have been the home of Champion's pulp and paper mill for 79 years. The river has been dark and polluted for this period while Champion and its stockholders have reaped significant returns from its Canton mill operation (1986 gross operating margin equaled $37.3 million). The traditional view that investment precedes return does not always apply. In the case of Champion's use of the Pigeon River, the return has already been received, but no significant investment in the river has yet been made.

Concluding Remarks

Being one of the largest timber resource companies in the country, Champion knows the importance of natural resource conservation. Like the Pigeon River, without conservation the company would have died years ago. Champion International Corporation is financially capable of providing for a clean Pigeon River, continuing its 79 year history in the region, and meeting its goal of being among the top quarter of all U. S.

corporations in terms of profitability. But for each goal to be realized, Champion must make necessary changes in pollution control facilities at its Canton mill. Only then will society as a whole benefit from Champion's operations on the Pigeon River.

> "If change has a most valuable lesson to offer perhaps it is that we need not be victims of it if we can accept it as an opportunity to grow and achieve. In this sense, we believe the best companies are the ones with operating styles flexible enough to make necessary changes without compromising commitment to producing a quality product at a fair price."
>
> Champion International Corporation 1986 Annual Report

A Financial Analysis of Champion International Corporation's Ability to Provide for a Clean Pigeon River

Addendum

Latest Financial Disclosure of Champion International Corporation

by

William H. Barnett, II, M.Acc., CPA
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January 24, 1988

A Financial Analysis of Champion International Corporation's Ability to Provide for a Clean Pigeon River

Addendum

Latest Financial Disclosure of Champion International Corporation

Champion International Corporation far exceeded expectations during 1987. For the nine month period ended September 30, the company reported net sales revenue of $3,457,235,000 which represents an increase of only 3.8 percent over the first three quarters of 1986. For the same period, however, net earnings increased 120 percent from $136,290,000 in 1986 to $299,872,000 in 1987. Primary earnings per share (EPS) increased from $1.39 for the first nine months of 1986 to $3.17 in 1987 representing a 128 percent increase over the prior year. These income figures include a gain of $88,700,000 (89 cents per share) realized from the sale of investments held in Stone Container Corporation and U. S. Plywood. Even if such income was removed from the above results, the growth in earnings would still represent a 55 percent increase over 1986.

Champion's balance sheet also improved significantly during 1987. For the twelve month period ended September 30, working capital increased by $240,433,000. The corporation was also able to retire $256,290,000 of long-term debt which further strengthened its financial position.

Champion officials have publicly stated that its goal is to be among the top quarter of all U. S. firms in terms of profitability. Such a goal would require a 16 percent return on common equity. Since Champion cannot control the price charged for its product, this objective can only be reached if the company can reduce its costs by some $400,000,000 annually. Andrew Sigler, Champion's chief executive officer, commented in a Fortune interview last year, "In overhead you either stop doing something that you're spending dollars for, or people go out the door--one or the other."

Obviously, Champion is making considerable progress toward meeting its profitability goals. The company has scaled down its operations since the early 1980's to become a lean, efficient producer with lower costs and higher profit margins. Champion no longer is number one in sales among forest product companies but has become considerably more profitable. Employment has decreased from a high of 58,700 during the early 1980's to 31,300 in 1987.

Champion officials continue to claim that if required to meet strict EPA requirements for water quality along the Pigeon River, the Canton mill will close. The Canton mill is one of the company's largest production facilities. Such a closure would create a capacity shortage for the company, and loss of market share would result. However, the decision to close the Canton facility is strictly an economic one for Champion. If it will cost less for Champion to install pollution control equipment and maintain its facility in Canton, the company will stay in Canton. If it will cost less to relocate its capacity, the Canton mill will close. However, in the short-run, closing the Canton mill would be the least desirable and most costly alternative. Company officials realize the costs involved in moving its Canton facility would be prohibitive. Oliver Blackwell, Champion's vice president and general manager for the Canton mill, said at the EPA hearing held in Canton, "The company would pay an enormous penalty if the plant is closed."

ENVIRONMENTAL DEFENSE FUND

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TESTIMONY
# of the
ENVIRONMENTAL DEFENSE FUND
on
THE RISKS OF DIOXINS AND FURANS
PAPER PULPMAKING

July 13, 1988

National Headquarters
257 Park Avenue South
New York, NY 10010
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The Environmental Defense Fund is pleased to present testimony before Congress on the subject of dioxin/furan production in the chlorine-based bleaching of wood pulp in the paper industry. EDF is a national, nonprofit environmental organization, with over 60,000 members, which has long been concerned with the identification and reduction of avoidable risks to human health and the environment. Since 1984, EDF has been involved in a proceeding under the Toxic Substances Control Act (TSCA) to obtain actions from the EPA to reduce ongoing inputs of highly toxic and persistent halogenated dibenzodioxins and dibenzofurans (PHDDs and PHDFs) from industrial, combustion, and other sources. In 1984, we petitioned EPA under Section 21 of TSCA to take a range of preventive actions which would substantially reduce these inputs and the resultant dispersion of these very troublesome chemicals into the air, water, soils, and food chain. At the present time, we are engaged in litigation with respect to those portions of our petition which were not granted by EPA. One of our major concerns is the chlorine bleaching process widely used in pulpmaking. Our offices in Virginia and North Carolina are involved in obtaining release of information from facilities operating in those states which potentially jeopardize the resources of the whole midatlantic coastal fisheries.

I am Dr. Ellen Silbergeld, director of the Toxic Chemicals Program at EDF. My testimony will be concerned with an evaluation of the risks associated with the demonstrated production of dioxins and furans in pulpmaking. Others here will discuss the database on chemical releases and environmental contamination near paper mills in the US and Canada. In addition to my position with EDF, I serve on the Executive Committee of the Science Advisory Board of the EPA and the Board on Environmental Sciences and Toxicology of the National Research Council. In these positions, I have been requested to serve as an expert on matters relating to dioxin and furans: by EPA, as an expert to review the 1985 Health Assessment Documents on dioxins and furans; as a member of a special panel to discuss hazards of brominated dioxins and furans; and as special reviewer of EPA's October 1987 revision of the cancer specific risk estimate for dioxin. I am currently a member of the National Research Council Committee on Dioxin. In addition, I hold adjunct faculty positions with the University of Maryland Medical School and the Johns Hopkins Medical Institutions; my research activities concern the mechanisms of action of dioxin in nerve and muscle.

It is incontestable that Americans are currently being exposed to dioxins and furans from a number of ongoing and historic sources, through environmental media and contamination of the food supply. Samples of human adipose tissue and breast milk have been taken from several hundred persons in North America and Western Europe over the past five years and assayed by

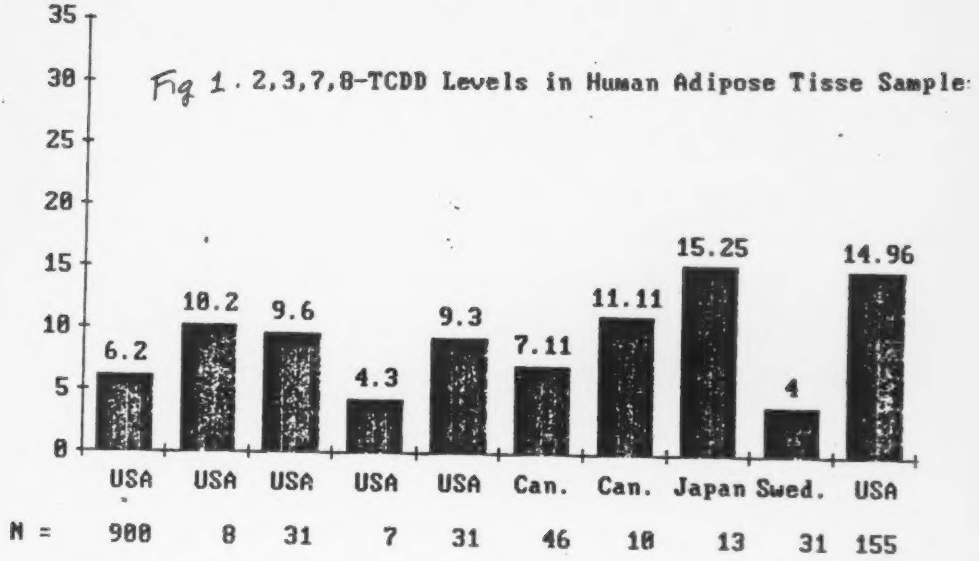
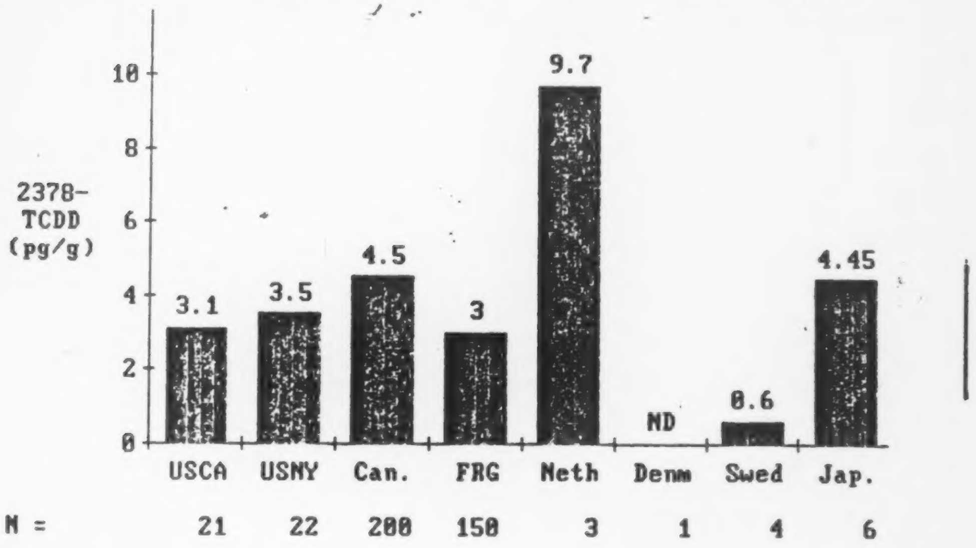


Fig 1. 2,3,7,8-TCDD Levels in Human Adipose Tisse Sample

Fig 2. 2,3,7,8-TCDD Levels in Human Breastmilk Samples



scientists in government and academia. As shown in figures 1 and 2, all persons examined have measurable levels of dioxins and furans; there is no reason to doubt that this condition extends to all of us in this country today. The average concentration in US residents is approximately 6.5 parts per trillion in fat. The issue of concern to Congress in this hearing must be: what is the contribution of the generation and release of dioxins and furans by bleached kraft papermaking to this ongoing burden of exposure?

In reaching your conclusions, you should consider the overall toxicologic and public health significance of this exposure, as revealed in the reports of measurable levels of dioxins and furans in human fat and breast milk. We have calculated the likely exposure, on a chronic basis, which would be required to produce these levels inside humans, as shown in Table 1. This calculation indicates that, in populations without special occupational or environmental exposures, the average American must be encountering almost 1 pg/kg/day of 2,3,7,8-TCDD, and 6-40 pg/kg/day of the total burden of toxic dioxin and furan isomers to result in levels as high as those being measured in the US population (this total burden is sometimes described as total dioxin TEFs, or toxic equivalency factors, or NATO TEFs [a set of numbers developed by an expert committee organized under the NATO CCMS, of which I am a member]; it provides a system for considering the total toxicological impact of all the toxic dioxins and furans, and it is important because in most situations dioxins and furans are produced and released in mixtures, rather than one at a time).

Table 1. Daily Intake Calculation

From Casarett & Doull's Toxicology, the formula for average concentration at steady state is:

$$C_{ss} = \frac{f \times D_{oral}}{V_d \times k_{el} \times T} \qquad \text{(equation 1)}$$

where
C_{ss} = average concentration in lipid at steady state
f = fraction absorbed
D_{oral} = oral dose
V_d = volume of distribution of lipid in body
k_{el} = constant of elimination
T = constant time interval between doses.

-- Rearranging algebraically to solve for dose,

$$D_{oral} = \frac{V_d \times k_{el} \times T \times C_{ss}}{f} \qquad \text{(equation 2).}$$

Assigning values to variables as follows,

C^*_{ss} = measured tissue levels of substance * in question

f^* = fraction absorbed of substance * in question;
= 0.5 for PHDDs/PHDFs

$$k_{el} = \frac{0.693}{T^*_{1/2}} \qquad \text{for first-order kinetics}$$

(Casarett & Doull, p. 60)

where $T^*_{1/2}$ is the half life of substance * in question

T = one day (for daily intake)

V_d = volume of distribution = amount of lipid in body

$$= \text{bodyweight} \times \frac{\text{proportion lipid}}{\text{bodyweight}}$$

$$= 70 \text{ kg bodyweight} \times \frac{0.2 \text{ kg lipid}}{\text{kg bodyweight}}$$

(average male weighs 70 kg and has 20% of his bodyweight as lipid)

$$= 14 \text{ kg lipid}$$

-- Substituting these values into equation 2,

$$D_{oral} = \frac{14 \text{ kg lipid} \times \frac{0.693}{T^*_{1/2}} \times \text{one day} \times C_{ss}}{0.5}$$

(equation 3)

-- Rearranging numerator and denominator terms,

$$D_{oral} = \frac{14 \text{ kg lipid} \times 0.693 \times \text{one day} \times C^*_{ss}}{0.5 \times T^*_{1/2}}$$

(equation 4)

-- Isolating constants (i.e., terms not specific to particular substance*),

$$D_{oral} = \frac{14 \text{ kg lipid} \times 0.693 \times \text{one day}}{0.5} \times \frac{C^*_{ss}}{T^*_{1/2}}$$

(equation 5)

-- Multiplying constant terms together,

$$D_{oral} = 19.4 \text{ kg lipid} \times \text{one day} \times \frac{C^*_{ss}}{T^*_1}$$

(equation 6)

Calculation for 2,3,7,8-TCDD intake:

concentration C^*_{ss} = 6.5 ppt = 6.5 ng/kg lipid

half life $T^*_{1/2}$ = 2190 days (= 6 years)

Substituting these values into equation 6,

$$\dot{D}_{oral} = 19.4 \times \text{kg lipid} \times \text{one day} \times \frac{6.5\ \text{ng/kg lipid}}{2190\ \text{days}}$$

$$= 0.0576\ \text{ng}$$

$$= 57.6\ \text{pg} \quad (\text{ng} = 1000\ \text{pg})$$

expressed on per kilogram basis by dividing by 70 kg,

daily dose of 2,3,7,8-TCDD = 0.822 pg/kg

or 2,3,7,8-TCDD intake = approximately one pg/kg/day

Calculation for total NATO TEq intake:

concentration C^*_{ss} = 60 ppt = 60 ng/kg lipid

minus 6.5 ng/kg/lipid of 2,3,7,8-TCDD = 53.5 ng/kg lipid
(2,3,7,8-TCDD segregated for separate calculation, per above)

The half-lives of non-2,3,7,8-isomers are not known with precision, but appear to fall within the range of one to seven years. Therefore, upper and lower intake bounds can be estimated by calculating intake both on basis of a one year half-life and a seven-year half-life:

half life T^*_1 = 365 days (1 year) (lower estimate)

OR

half life $T^*_{1/2}$ = 2555 days (7 years) (upper estimate)

Substituting these values into equation 6,

$$D_{oral} = 19.4 \text{ kg lipid} \times \text{one day} \times \frac{53.5 \text{ ng/kg lipid}}{365 \text{ days}}$$

= 2.84 ng

= 2840 pg

expressed on per kilogram basis by dividing by 70 kg,

daily dose of total non-2,3,7,8 TEqs = 40.6 pg/kg (one year half-life)

$$D_{oral} = 19.4 \text{ kg lipid} \times \text{one day} \times \frac{53.5 \text{ ng/kg lipid}}{2555 \text{ days}}$$

= 0.404 ng

= 404 pg

expressed on per kilogram basis by dividing by 70 kg,

daily dose of total non-2,3,7,8 TEqs = 5.77 pg/kg (seven year half-life)

plus 2,3,7,8-TCDD intake of 0.822 pg/kg/day (figured separately above),

total TEqs intake = approximately 6.6 to 41 pg/kg/day

What is the significance of this level of exposure? We can consider this in the context of risk assessments which have been conducted by EPA, in 1985, and by the NY State Health Department in 1988. Two well-established health effects of the dioxins and their chemical cousins the furans have been of concern in assessing human health risk: carcinogenicity and reproductive toxicity. In addition, it is known that these chemicals adversely affect the immune system, skeletal muscle, hormone function, skin, liver, kidney, and heart; however, attempts at quantitating the health risk have focussed on cancer and reproductive toxicity because of the amount of well-validated data and supportive (although not yet conclusive) evidence in humans.
Well-conducted bioassays performed by Dow Chemical and by the US Government National Toxicology Program have found that 2,3,7,8-TCDD, the isomer of dioxin of greatest health concern (because of its well studied toxicity and stability) found in pulp, paper products, and fish downstream from pulpmaking plants, is carcinogenic in laboratory animals. Several different cancers were produced in excess in both studies. Using EPA's peer-reviewed and published procedures for assessing the risks of chemical carcinogens and the data from the Dow Chemical study, the daily intake of 2,3,7,8-TCDD associated with a one-in-a-million excess cancer risk has been calculated by EPA to be 6.4 femtograms/kg/day for a lifetime of exposure. Studies on the reproductive toxicity of dioxin -- which includes teratogenicity (birth defects), fetal intoxication, and neonatal death -- have also been done by industry and government. Based upon these data, New York State experts and others have concluded that an acceptable daily intake of 2,3,7,8-TCDD which would be likely to prevent reproductive toxicity is 1 pg/kg/day.

These are very low numbers, but not biologically absurd numbers. These are extremely toxic chemicals. Although much remains to be discovered concerning the molecular actions of dioxins and furans, we know enough to compare them in nature to the naturally occurring hormones which regulate so many physiologic functions, including development, reproduction, response to stress, and immune status. The low numbers that are often ridiculed in the instance of dioxin are not biologically implausible, in the context of the molecular biology of steroid hormones, for instance. If dioxin acts like a hormone -- and there is growing evidence that this may be the case -- this very great potency is not incredible.

EPA, unfortunately, seems to find these numbers disquietening -- despite their sound basis in replicated experimental studies and lack of contradiction in human epidemiology. Over the past half year, the Agency has engaged in an attempt to foist off a revised risk assessment for dioxin, one which would downgrade the risks of human exposure by 10 to 20-fold. It is asserted by some parties at interest that the EPA has in fact effectively downgraded dioxin risks for all intents and purposes, including the possible regulation of the paper industry under TSCA or the Clean Water Act or RCRA. This is not the case. As stated by Dr. William Farland, head of EPA's Carcinogen Assessment Group, until there is complete peer review and a completed process of public comment, the conclusions of EPA's 1985 Health Assessment Document stand. That is, as we discuss this issue today, in July 1988, the quantitative risk assessment calculation is still that our best upper bound estimate of the consequences of a lifetime exposure to an intake greater than

6.4 fg/kg/day is likely to result in an excess incidence of cancer greater than 1 in a million.

In October 1987, EPA circulated to a small group of reviewers, including me, a draft revision of the cancer risk assessment for dioxin. Although it was purported to be based upon evaluation of new scientific information (e.g., since 1985), it was in fact little more than an attempt by the Agency to hide its conclusions within the risk assessments conducted by various agencies using a range of assumptions and risk assessment methods other than those which form the basis of EPA's own cancer risk assessment policy. The much-publicized revision, 0.1 pg/kg/day for a 1:1,000,000 risk, was about 16 times higher than the 1985 risk number of 6.4 fg/kg/day. In attempting to discern its origin, there was no actual cancer study which could be found to support this new number. It was no more than an averaging of risk assessments produced by others. As an average, it had no grounding in science. Fortunately, EPA quickly withdrew this attempt, although it has not been vigorous in getting the message out to all those who were given the mistaken impression that a formal, approved revision had been promulgated.

We are in the midst of round two in dioxin revisionism. The EPA has presented to the Science Advisory Board, and just released for public comment, not a new revision, but a new basis for the same revision. In April, the EPA proposed a new rationale, not averaging, but rounding up. In this new attempt, agency officials -- it strains my sense of scientific collegiality to call them scientists -- established a socalled window of comfort in the range of risk assessments done, as above, by others. Within that window, the Agency then discovered an average value of 0.06, or approximately 10-fold discount of the 1985 assessment (the only assessment to date soundly based on a specific set of real data and not manipulation of selected datasets). How did 0.06 become 0.1? By rounding up, according to Dr. Farland. It remains to be seen if the scientific community will tolerate these innovative procedures in risk assessment, which some have described as ludicrous.

At present, in my opinion, there is no serious challenge -- unless the EPA proposes to rewrite its procedures for carcinogen risk assessment en bloc -- to the 1985 number of 6.4 fg/kg/day. That is the number for you to consider in evaluating this testimony and the facts which will be presented to you today in this hearing.

As discussed above, we have estimated that an intake of 0.8 pg/kg/day of dioxin would be required to cause the measured body burdens in the US population today. This is more than 100 times the intake calculated by EPA in 1985 to be associated with a one-in-a-million excess cancer risk, and it bumps into the acceptable daily intake for reproductive toxicity alone. When the range of dioxin and furan isomers of concern are considered -- a total of 16 closely related chemicals -- the current intake rises to as much as 41 pg/kg/day of socalled dioxin equivalents, or over 6000 times the intake level associated with a one-in-a-million excess cancer risk, and 40 times the acceptable level calculated for preventing reproductive toxicity.

Can we conclude that chlorine-based pulp bleaching mills are an important source of exposure and risk? It is our opinion that this source of dioxins and furans is critical and requires regulation by EPA. This is based upon the amount of dioxins and furans produced by this source category, the ways in which people come into contact with dioxins and furans from this source, and the particular propensity for widespread dispersion of dioxins and furans from this source and their ability to be bioconcentrated, by tens of thousand-fold factors, in fish tissue. Moreover, it is important for you to consider that controls on this source can be accomplished without unacceptable economic or technological dislocations. As you will hear from others, steps are being taken in other countries to effect interim product substitutions and technology replacement which will result in control on this source without disrupting the paper industry.

Pulpmaking is a significant source of dioxins and furans in many environmental media, as well as a source of direct human exposure via workplace exposures and use of consumer products. In addition, chlorination of pulp in bleaching results in the formation of over one hundred small molecular weight byproducts, which are preferentially accumulated in fat and thus protected from environmental degradation and likely to be accumulated, like dioxin, in fish. Most of these have not been identified; yet effluents from these processes are highly toxic to aquatic life. Actions to reduce or prevent formation and release of dioxins and furans will also reduce or prevent the generation of this as-yet only partially studied problem of major proportions. This is an important part of the overall calculus for concluding that risk reduction is imperative in this area.

Human health risk, which is the major focus of my testimony, potentially concerns workers, users of bleached paper products, and others who may come into contact with the eventual disposition of contaminated wastes and disposed products. The industry has commissioned several evaluations of the risk, primarily to consumers. Labor unions in the US and Canada have expressed concern and requested investigations by NIOSH. Contact with contaminated waste has raised concern in a number of states, particularly given the practice of using pulp solids for soil improvement, a practice which has been severely constrained in Maine as a result of recent disclosures.

The industry asserts that an investigation of the risk shows that consumer contact with contaminated products will not result in measurable risks. In the NCASI Technical Bulletin No. 546, published May 1988, "Assessment of the Risks Associated with Potential Exposure to Dioxin Through the Consumption of Coffee Brewed Using Bleached Paper Coffee Filters", a calculation of likely exposures and resultant risks is presented to support a conclusion that the amounts of dioxin and furan measured in coffee filters constitute a risk between zero and one-in-a-million (p. 25-26). Unfortunately, this is not the case. Using NCASI's own data and exposure assumptions, we find that the estimated risk is on the order of 5 in a million (see Table 2). Moreover, as yet unquantified is the presence of other highly chlorinated dioxins and furans, in addition to the 2,3,7,8-isomers which were quantitated by the NCASI study. Revisions in the international system of evaluating these isomers, containing 4-8 chlorines, raise the level of health concern for exposures to mixtures.

Table 2. Estimating the risks of consuming coffee made with paper filters contaminated by dioxin and furan[a]

NCASI: 4 ppt 2,3,7,8-TCDD found in paper coffee filters (maximum)

coffee filter weighs 1.2 grams

brewed volume of coffee is 1.8 liters

volume of coffee per cup is 200 ml

coffee drinkers (high rate) drink 5-6 cups per day

4 ppt = 4 pg/gram
therefore, each filter contains 4.8 pg

In brewing approximately 80% of dioxin/furan content is leached into coffee (NCASI)

therefore, each pot brewed contains 3.84 pg 2.3.7.8-TCDD maximum

a high rate coffee drinker will consume 5 x 200 ml coffee per day, or one liter per day.

One liter of coffee will contain 2.13 pg 2.3.7.8-TCDD, based on a total brewed volume of 1.8 liters. (NCASI)

therefore, daily exposure is 2.13 pg/day, or, for a 70 kg person, 30.4 fg/kg/day

EPA's 1985 HAD risk assessment: 6.4 fg/kg/day is upper bound estimate for one-in-a-million excess cancer risk

therefore, this exposure is approximately 5 x 1:1,000,000 excess cancer risk from drinking coffee alone

The industry's approach is to isolate sources of exposure product-by-product, circumstance-by-circumstance, rather than to consider the cumulative effect of its practices upon human exposure and environmental contamination. Individuals are not exposed to dioxin and furan in paper solely as coffee drinkers, and dioxins and furans produced by kraft bleaching do not end up solely in coffee filters.

Other consumer uses of paper products which give rise to concern as to exposure include paper towels, uncoated paper plates, tissue paper, and the use of paper pulp in hygienic products for babies and women. The data developed by NCASI on the ease with which dioxins and furans migrate from the paper matrix are extremely worrying. Coffee making represents an almost ideal simulation of laboratory chromatographic extraction -- the application of a hot solute containing oils to a thin paper surface containing dioxins and furans. However, we can consider scenarios of consumer product use which would also be likely to facilitate migration of dioxins and furans from paper into food -- for instance, using paper towels to cook greasy foods and to degrease them -- or through skin -- for instance, using tissues and paper towels with solvents such as fingernail polish remover or furniture strippers. Coffee drinkers, and the rest of us, will inevitably encounter dioxins and furans from bleached paper in a multitude of proximate sources, not solely coffee filters.

The generation and release of dioxins and furans from bleaching do not solely impact upon the product. This is the major justification for the use of powers under TSCA to intervene at the production level; otherwise, we may see a series of steps which merely transfer rather than reduce the risks of human and ecological exposures. Moreover, these transfers may increase the dispersion of dioxins and furans into the environment, increasing the costs of identification and remediation and ultimately restricting our effective controls to restrictions on fishing. By this process of abdication, we will condemn our nation to the gradual loss of recreational and other fishing, with no assurance that once lost we can reclaim these precious resources.

Dioxins and furans produced in the bleaching process may be distributed throughout materials and compartments downstream from the additions of chlorine; the relative distribution will depend upon process-specific operations and waste management techniques. Overall yield will not be affected, however. Major focus has been placed upon the distribution of these toxins into the final product, and into wastewater discharges (and hence, into aquatic organisms which bioconcentrate dioxins and furans). However, dioxins and furans may also be associated with fine solids and either removed from the product, collected in water treatment stages, or discharged with other wastes from the facility. We are concerned about the lack of oversight over this vector of release: through sludges and solids collected from the aqueous media of the bleaching and pulping operations. At present, there is no oversight over the management and disposal of these wastes. Use of these sludges in agriculture, as noted above, indicates the potential for substantial human and food chain contact.

There are considerable uncertainties and research needs in determining the factors which promote formation of chlorinated byproducts in pulpmaking. Also, environmental monitoring of ecosystems downstream from plants, surveillance of potentially exposed workers, dispersion and environmental fate of releases deserve study. However, it is our opinion that these uncertainties and research needs are not reasons to delay action which could expeditiously reduce risks and prevent the buildup of dioxins and furans in our waters, fish, and bodies. There is no need for EPA to await the results of an industry-wide study of all facilities. Information developed by industry and the scientific community is sufficient to compel acceptance that the chlorine bleach process yields dioxins, furans, and many other low molecular weight chlorinated lipophilic substances. There is sufficient information on the technical feasibility and economic acceptability for EPA to require industry to take these steps immediately:

1. ban the use and importation of chlorine bleached pulp products from uses contacting food or used by consumers in preparing or consuming food
2. restrict the disposal of dioxin- and furan-contaminated wastes to RCRA-approved incineration or land disposal facilities
3. ban further construction of new bleaching plants which utilize chlorine

On a longer term, EPA should be required to expedite review of discharge permits for this industry, to evaluate onsite management of water and sludge wastes, and to investigate potential worker and community exposure to releases. In addition, EPA should establish an expedited timetable for the phase out of chlorine bleaching, beginning with the substitution of chlorine dioxide for a portion of the chlorine input, and ending with the transition to a nonchlorine dependent process of bleaching and pulping. This is a robust, economically healthy industry; the strong demand for pulp and paper has encouraged substantial capital expenditures in excess of $400 million projected for 1988-1992 (according to Pulp and Paper June 1988). This investment should not replicate the problems of the past by propagating an outmoded and environmentally hazardous technology. Substitute processes have been put on line in Japan and Scandinavia; their lower operating costs in those countries may threaten the future of the North American industry, particularly if consumer health concerns are not met responsibly and fully by the private sector and by government.

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JUNE 13, 1988

TESTIMONY OF RENATE KROESA

BEFORE

THE HOUSE OF REPRESENTATIVES COMMITTEE ON PUBLIC WORKS

SUBCOMMITTEE ON WATER RESOURCES

REGARDING

DIOXIN CONTAMINATION IN THE PULP AND PAPER INDUSTRY

My name is Renate Kroesa. I am an industrial chemist with a seven-year degree from the University of Tuebingen in West Germany, the equivalent of a masters degree in the States. I serve as the international pulp and paper director for Greenpeace. I am based out of Vancouver, British Columbia. Thank you for the opportunity to testify today before this subcommittee.

Greenpeace's efforts with regard to the pulp and paper industry began some three years ago in Europe, and were launched in North America last year, upon our issuance of "No Margin of Safety." (a copy of which we would like to submit as written testimony).

"No Margin of Safety" played a pivotal role in making public the link between dioxin and the pulp and paper industry. The first few pages of "No Margin of Safety" outline how that particular document came to be, as well as some of the events that have since occurred. The internal EPA documents, upon which the report was based, were not our first glimpse of EPA's attempts over the years to "manage" the risk of dioxin by managing the public's perception of it.

We had followed, as closely as we were allowed, the Agency's earlier move to downgrade the toxicity of dioxin, from 1 ppt to 1 ppb cleanup levels in soils. This was during the Times Beach days, when Rita Lavelle lost her job. We also followed development of the National Dioxin Study, and watched it become a concerted attempt to scrutinize extinct sources of dioxin rather than pinpoint any ongoing ones.

Though public perception about the danger dioxin poses has not been altered through these efforts, EPA has been able to defer regulation of the chemical on a number of fronts, including garbage and hazardous waste incineration, continued use of the wood preservative pentachlorophenol, and, we now learn, the pulp and paper industry.

Within a few month's after publication of "No Margin of Safety", we received, in a nice, unbleached brown envelope, a set of secret paper industry documents which revealed that dioxins had also been found in the paper products themselves, and that the paper industry had conducted a market survey indicating that if consumers were made aware of this contamination, sales of paper goods would suffer dramatically.

I'd like to stress that in our view dioxin is really only the tip of the iceberg when it comes to nasty toxins in pulp mill effluents. Even before Greenpeace knew of the link between chlorine-based bleaching and dioxin, we knew enough about the industry's water discharge to warrant concern. Pulp and paper effluents rank as some of the most toxic any industry can produce.

Chlorinated organic matter, or organochlorines, as they are more correctly named, are a class of man-made chemicals not found in nature. They are marked by their toxicity, and resistance to biological breakdown. Many are bioaccumulative. Almost all of the problem chemicals EPA has banned over the last two decades are members of this chemical class.

The pulp and paper industry is responsible for more than half of all organochlorines discharged into the world's waterways. All of this waste is linked to the conventional method of bleaching pulp from brown to white, a process which typically calls for the use of chlorine, chlorine dioxide, and to a lesser degree hypochlorite. In the United States there are about 100 mills that use this chlorine-based process.

Effluents from conventional chlorine-based bleacheries contain more than 1000 different chlorinated compounds. Only about a third of these have been identified, but among these we find many well-known carcinogens and mutagens, and in general many chemicals that, when generated deliberately or incidentally by the chemical industry, are tightly regulated.

By contrast, a typical water discharge permit for a pulp mill places few limits on chemicals in the discharge. Usually only two parameters appear on the permits: biological oxygen demand, and total suspended solids, both indirect measures of the biodegradable elements in the effluent, but not indicative of its chemical toxicity. Likewise, the external treatment ponds in use at most U.S. mills are ineffective against organochlorines, and at best only merely an escape route to the air for the more volatile compounds, such as chloroform.

Because disposal into waterways is essentially free, there is very little economic incentive for the industry to reduce their organochlorine discharge.

When dumped into waterways, organochlorines tend to defy dilution by concentrating in the sediments and further concentrating in the food chain. A good case in point is dioxin, which while discharged in seemingly minute amounts, has made many fish and shellfish too toxic to eat, and is taking its toll on other species as well. Last year, an entire colony of blue herons living near a mill in British Columbia failed to hatch a single egg. Those eggs when sampled contained some of the highest levels of dioxins ever measured in wildlife.

DIOXIN

Dioxin of course is an extraordinary poison. A single drop placed in an Olympic sized swimming pool would prevent the hatching of trout eggs therein. A similar concentration when fed to guinea pigs or hamsters would kill them outright. Because not all animal species are equally sensitive to the effects of dioxin, however, the job of extrapolating effects to humans is subject to much scientific and pseudoscientific interpretation. After years of intensive research, much legitimate uncertainty remains. Yet a dioxin level at which no adverse human health effects would occur has never been established.

Much attention has been given to the cancer causing potential of dioxin. In animal tests, dioxin was found to be the most potent carcinogen ever discovered. Further, dioxin was found to cause all sorts of cancers, and also to enchance the carcinogenicity of other chemicals. Although some scientists claim that there is no evidence that dioxin causes cancer in humans, this is simply not true.

Swedish studies, for example, link dioxin to such rare cancers as soft tissue sarcoma. Other studies link lymphosarcoma, Hodgkin's disease, and other cancers of the lymphatic system with exposure to dioxin. It is also possible that these cancers might be the indirect result of dioxin's known suppression of the immune system. Still other animal studies link dioxin with other cancers, such as those of the stomach, lungs, and skin.

Dioxin has also been linked to gross birth defects like spina bifida and anencephaly, where the baby is born without a brain, as well as still births and sterility. While living and working in

New Zealand, I was told of three babies, all born without a brain within one week to women who all lived along the same road. It so happened that, nine months before, the roadside had been sprayed with 2,4,5-T, an herbicide contaminated with dioxin. This killer left no fingerprints, no smoking gun. There is no proof that the 2,4,5-T or the dioxin in the 2,4,5-T caused the fatal birth defects, and there never will be. Neither did this incident make it into epidemiological journals.

There are many stories like this to be told, yet even what we know of lab studies should make us wary: the reproductive system of Rhesus monkeys, too phylogenetically close for comfort, is extremely sensitive to dioxin given in minute quantities in the daily diet. J.R. Allen of the University of Wisconsin exposed Rhesus monkeys to as little as 50ppt of dioxin daily for up to nine months. The majority of the animals were not able to conceive or carry pregnancies to term. Male monkeys experienced serious decreases in sperm count.

With regard to reproductive failure, EPA's most recent risk assessment states: (quote) "The effects have been observed in a variety of species, indicating that the toxicity is not a species specific event and can be expected to occur in all species, including the human."(end quote)

Just how much risk are we prepared to take? We know that dioxin is present in human milk. Breastfed babies from today's industrialized countries already ingest much higher amounts of dioxin in their daily diets than do their parents, and much higher doses than those recommended for a healthy adult by the World Health Organization. A baby, with its developing system is far more sensitive to any poison than an adult.

All of which suggests we should exercise extreme prudence in introducing any more dioxins into the environment.

THE ANSWER

From this grim discussion one may suppose erroneously that dioxin is everywhere and that there is little we can do about it. Not so.

A closer look shows that the common thread here is organochlorines, their deliberate or accidental manufacture, their use, or their combustion. Indeed, the way out of the maze for the pulp and paper industry is relatively simple and has a proven track record:

1> stop using chlorine and its derivatives for bleaching
2> start marketing unbleached paper products as such

To the extent we can do these two things, we will all reap the benefits of a dioxin-free pulp and paper industry.

Sweden provides the world with an excellent example of how dramatically these measures can improve the pulp and paper industry. A few years ago Sweden's 15 mills were that country's biggest polluter. And it was concern over the organochlorines in the discharge, prior to discovery of dioxin, that prompted the change we see today.

The Swedes have used two technological approaches to reduce their use of chlorine for bleaching. The first is to use more chlorine dioxide as opposed to straight chlorine in the first stage of bleaching. Many U.S. mills are doing this already. The second approach is oxygen delignification, which reduces chlorine and chlorine dioxide use in the bleachery.

These measures, when augmented by other in-house practices such as extended pulping, better washing of pulp prior to bleaching, and more efficient mixing, have combined to reduce overall organochlorine discharges from the industry, including dioxin, by about 80%.

Many of the mills adopting these newer oxygen-based systems in Sweden, West Germany, and Japan, are saving money by doing so, because oxygen is less expensive than chlorine. Mills that employ the technology are also seeing dramatic reductions in the oxygen-robbing properties and the color of the discharges. Moreover, the potential now exists for closed loop systems; Sweden is even talking about zero discharge of organochlorines by the year 2010.

Another equally important element in Sweden's success story has been the industry's willingness to market unbleached paper products. Indeed consumers all over Europe now have the choice between bleached and unbleached toilet paper, coffee filters, sanitary napkins, baby diapers, and writing paper. These are marketed as chlorine-free, and they are popular.

In fact, a consumers association in Sweden prints up a pamphlet that ranks various paper products for sale in that country according to the method used in their bleaching. Competition to be listed among the "good" papermakers led some mills to speed up their conversion to oxygen-based bleaching.

By contrast, consumers in North America are given few choices, and have been taught over the years to equate whiteness with purity. And U.S. industry is doing all it can to keep us in the dark. But for this absurd insistance upon whiter than white paper products, the industry could be dioxin-free. The Pigeon River could be dioxin-free.

The industry will claim that they are merely responding to consumer demand, that if consumers would settle for off-white toilet paper and off-white milk cartons, and the like, that the industry would answer that need. Remember though, that this is America, the land of Yankee salesmanship that the rest of the world envies. Just look at what Americans eat! Just look at what Americans watch on television!

Greenpeace will not be convinced that consumers, when made to understand the real tradeoffs between breastmilk contamination and the color of their toilet paper, will not make a wise choice when given one.

What is the government's role in all this? What can you do to assure a dioxin-free pulp and paper industry? We have three suggestions:

1> Through the Clean Water Act and the National Pollutant Discharge Elimination System, place limits on the chlorinated discharges to be found in pulp mills. We suggest that TOCl (total organically-bound chlorine) be used as the permit parameter. It is a reliable indicator of the nastiness of the discharge, and is fairly cheap to monitor.

2> Require that mills adopt the in-house process changes necessary to meet the conditions of the permit. We feel that it is possible for U.S. mills to reduce their organochlorine discharges 80 percent by 1992.

3> Allow the consumer an informed choice by requiring warning labels on all dioxin-contaminated paper products. The consumer has a right to know and a key role to play in the solution.

Thank you.

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* STATEMENT OF *

* CAROL VAN STRUM *

* Regarding *

* Dioxin Oversight *

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before the

COMMITTEE ON PUBLIC WORKS
SUBCOMMITTEE ON WATER RESOURCES
UNITED STATES HOUSE OF REPRESENTATIVES

July 13, 1988

CAROL VAN STRUM
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STATEMENT OF CAROL VAN STRUM

BEFORE THE SUBCOMMITTEE ON WATER RESOURCES
COMMITTEE ON PUBLIC WORKS
U.S. HOUSE OF REPRESENTATIVES

July 13, 1988

Honorable Chairman and Members of the Subcommittee:

My name is Carol Van Strum. I am an historian with a particular interest in dioxin regulation as a political phenomenon. I am co-author of a report published by Greenpeace last year that stirred much of the controversy leading to this hearing.[1] My report on the pulp mill dioxin problem summarizes more than ten years of close study of EPA's dioxin regulatory program, including review of more than 100,000 pages of internal EPA documents.

The North American paper industry pollutes more than four billion gallons of water per day.[2] Over a year ago, EPA headquarters staff internally considered the dioxin hazard from

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1. C. Van Strum & P. Merrell, No Margin of Safety: A Preliminary Report on Dioxin Pollution and the Need for Emergency Action in the Pulp & Paper Industry (Greenpeace, 1987). I understand that copies of our report have been distributed to Subcommittee Staff, and I ask that it be made a part of the hearing file. A copy is also on file with the U.S. District Court of Oregon, Van Strum v. EPA, Civil No. 87-6031-PA, included in Plaintiff Exhibit A to Plaintiff's September 25, 1987 Motion to Stay Proceedings, to Allow for Discovery, and for Order Barring Destruction of Evidence.

2. Dow Chemical Company memorandum, in Appendices to No Margin of Safety, note 1 supra, pp. X-32 - X-33.

pulp mills to be serious enough to warrant immediate regulatory action,[3] yet to date no action has been taken. This hearing is an important first step in Congressional efforts to remedy that situation, and I am sincerely grateful for this opportunity to speak with you today.

In 1980, EPA predicted that TCDD would be identified as a pollutant from pulp mills,[4] a prediction confirmed in 1983 by the discovery of high TCDD levels in fish downstream from several pulp mills in Wisconsin,[5] and reconfirmed in 1985 by levels found in associated stream sediments and pulp mill sludges.[6] Two and one-half years ago, EPA Region 5 officials' attempt to take regulatory action on pulp mill dioxin pollution was sabotaged by industry's and EPA headquarters' demand for further study.[7]

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3. EPA draft regulatory strategy documents. I understand that these documents have been distributed to the Subcommittee today by Greenpeace, and I ask that a copy be made part of the hearing file.

4. No Margin of Safety, note 1 supra, at pg. V-7 n. 14 (citing major EPA publication on dioxin, which in turn cites to a 1978 Federal Register notice).

5. Id., n. 15.

6. Id., pg. V-8 n. 19.

7. No Margin of Safety, note 1 supra, pp. VI-2 - V-19 (summarizing EPA records); see also leaked American Paper Institute records, pg. III-11 ("the industry was able to forestall major regulatory and public relations difficulties by . . . agreeing to cooperate in a joint study with EPA"). (I understand that copies of these leaked API records have been provided to Subcommittee Staff, and I ask that a copy be made a part of the hearing record. A copy is also included in the same Plaintiff exhibit in Van Strum v. EPA cited in note 1 supra.)

For nearly two decades, one form of dioxin, 2,3,7,8-TCDD, has been recognized as the most toxic synthetic substance yet discovered. (For ease of reference, I will simply refer to TCDD as "dioxin.") Despite this fact, EPA has balked at regulating dioxin from the beginning. The pulp mill dioxin problem is only the latest in a long history of inordinate delays and scandals involving EPA's semi-secret dioxin regulatory program.

EPA regulatory proceedings against the dioxin-contaminated herbicide 2,4,5-T, for example, began in 1970 and were not completed until 1983, when the herbicide's major manufacturer voluntarily agreed to take it off the market.[8]

EPA has still not promulgated standards to protect public health from dioxin pollution, despite a clear statutory mandate and despite a court order in 1976 to do so at least regarding water quality.[9] Instead, the Agency has relied upon informal, internal "levels of concern." EPA's constantly fluctuating "levels of concern" have uniformly failed to address the cumulative dioxin exposure to which humans are now exposed.

To my knowledge, only one dioxin water pollution source — the Dow Chemical plant in Michigan — has ever been required to limit its dioxin discharges through the NPDES permitting

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8. See record, In re Dow Chemical Co., et al., USEPA FIFRA Consolidated Docket No's. 415 et seq.

9. NRDC v. Train, 8 ERC 2120 (D. D.C. 1976); modified, 12 ERC 1833 (1979).

program.[10] EPA has identified at least one pulp mill discharging 50 times the amount of dioxin discharged by Dow,[11] but has not limited its dioxin effluents.

EPA's double standard on dioxin is not an isolated incident. EPA also tolerates different levels of dioxin fish contamination in different areas of the country. In the Great Lakes area, EPA issues public health warnings if fish are contaminated at 1 part-per-trillion dioxin.[12] Elsewhere, as in the Pigeon River situation, EPA uses the FDA 25 ppt warning level.[13]

Furthermore, EPA's reaction to evidence of increasingly widespread dioxin pollution has been to change its risk assessments rather than to regulate the pollution. In 1982, for example, EPA required cleanup of Hyde Park, N.Y., contaminated soils down to 1-50 ppt, the limits of detection.[14] Later the same year, when faced with the more extensive contamination at Times Beach, Missouri soils, EPA raised the action level to 1 part per billion, a thousand-fold increase.[15] Now, at Administrator Lee

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10. Leaked API documents, note 7 supra, pg. I-18.

11. Appendices, pg. 10.

12. Appendices, pp. 28-31.

13. Appendices, pg. 32.

14. United States v. Hooker Chemicals & Plastics Corp., Civil No. 79-989 (W.D. N.Y., April 30, 1982).

15. No Margin of Safety, note 1 supra, pg. X-4 - X-5 (Rita Lavelle briefing memo on Times Beach action levels).

Thomas's direction, the agency is raising the action level again, although no new scientific discoveries have demonstrated that dioxin is less hazardous than previously believed.

Such conduct on the part of the Agency charged with protecting public health raises suspicions that EPA is in bed with industry on the dioxin issue. Indeed, several scandals have reinforced such beliefs.

For example, high former EPA officials such as Anne Gorsuch Burford, John Hernandez, and Rita Lavelle resigned in disgrace amidst revelations that they had acted in industry's interests to suppress dioxin pollution information. 16/

EPA's handling of the pulp mill dioxin problem should be viewed in light of its traditional behavior: Leaked American Paper Institute documents show that collusion remains the norm between EPA dioxin regulators and regulated industries. 17/ As summarized by U.S. District Judge Owen M. Panner last November 18/ in my Freedom of Information Act case:

> "The documents appear to support the existence of an agreement between EPA and the industry to suppress, modify or delay the results of the joint EPA/industry study or the manner in which they are publicly presented."

The API documents and others belatedly provided by EPA

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16. Id., pg. IV-15.

17. Leaked API documents, note 7 supra.

18. Appendices, pp. 39-40. Van Strum v. EPA, note 1 supra, Opinion of November 3, 1987 at pp. 4-5.

indicate the direct participation in this agreement of EPA Administrator Lee M. Thomas.[19] They also indicate that part of the plot involved perjured testimony by EPA officials in my FOIA lawsuit.[20] Subsequent EPA deposition testimony revealed that API officials had actively lobbied EPA to withhold pertinent information from me and to mischaracterize both to me and to the public the information ultimately provided.[21] Such activities blatantly violate the public disclosure requirements of the anti-trust laws as interpreted in API's own internal legal memoranda.[22]

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19. Appendices, pp. 1-27; see also leaked API documents, note 7 supra, pp. I-3; I-8; III-31; III-37; III-40, 41, 43.

20. Appendices, pp. 43-44 (Court's opinion summarizing leaked API documents. See also Appendices pp. 74-93, my affidavit from Van Strum v. EPA, note 1 supra, referencing leaked API records and wilfully false affidavit statements by EPA officials involved in the pulp mill dioxin matter.

21. The most egregious falsehood was the testimony of EPA official Alexander McBride, mischaracterizing data that had been released to me as "meaningless," in accordance with the plot hatched by API. See Appendices, pp. 45-62 (deposition testimony by API official discussing plan to mischaracterize data). This data, the first data from which could be inferred the presence of dioxin in consumer products manufactured from pulp and paper, was omitted from my report because of the mischaracterization. EPA Dioxin Management Task Force Coordinator later testified that the information was sufficiently reliable to be used to set assumed product contamination levels in an EPA internal risk assessment. Appendices, pp. 69-71; see also Appendices pp. 72-73 (EPA contract for risk assessment setting assumed contamination levels five days after the data was characterized as "meaningless" to me on March 18, 1987. See also Appendices, pg. 63 (EPA internal document prepared by chairman of Chlorinated Dioxins Working Group on March 7, 1987, relying on same information for conclusion that paper products and mill effluents were contaminated).

22. Leaked API records, note 7 supra, pp. II-16 - II-38. See especially, pg. II-25 (quoting Justice Department position on

I therefore respectfully urge this Committee to consider referring the matter to the Justice Department for investigation, particularly in light of the personal involvement of EPA Administrator Thomas.

In summary, EPA's dioxin regulatory program is paralyzed and has been from the beginning. The present laws regulating dioxin have been insufficient to stir EPA to action, and more lives are at stake than just the lives of those who live near the Pigeon River. The Pigeon River residents breathe the polluted air and drink the tainted water, but all Americans use a wide range of dioxin-contaminated paper products. I therefore urge the Committee to support further investigation and to consider remedial legislation. Any of the resources I have available -- including sworn depositions of involved EPA and API officials -- will be at your disposal.[23]

I request an opportunity to submit further supporting documents after the close of testimony in this hearing.

Thank you.

"restraints on public knowledge," as API's own attorneys related it to the same research activities at issue.

23. To date, depositions have been completed for the following: EPA officials Michael Cook, Alexander McBride, James Cummings, Stephen Kroner, and Gary Amendola; API officials Michael Farrar and Carol Raulston; and Wayne Pines, a public relations specialist retained by API.

7/31
CMT/API 7-1

o release of NDS

o 5 mill study · balanced consistency — release as entire report v. 701A
12/11/87
Regions
· States (Health Commissioners) ME TX OH MN WI — go beyond 5 states
mill-specific questions

o Dioxin update – Early 1988
SAB before official release

questions about risk from paper/dioxin
bleached paper

* 106 mills/28 states w/ mills
$106/pulp

in product?

Bullard meeting notes.
' July 31 meeting between API and EPA

39-2

(DRAFT)
(due to the dynamic nature of the communications planning process, plans represent current suggestions and [illegible] and are never finalized)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
EXTERNAL AFFAIRS

September 15, 1987

MEMORANDUM

SUBJECT: COMMUNICATIONS PLAN
National Dioxin Study Report to Congress

(The last plan [illegible] to announce[illegible])

FROM: Susan Bullard, OEA/OSWER Susan
W 829
382-5660

TO: Addressees

Attached is the latest draft of the National Dioxin Study Report to Congress Communications Plan.

This version indicates specific proposed timing based on an October 1 release. You will also note that current (revised) plans are to release results of the Pulp and Paper Study concurrently with the Report to Congress.

Updates and revisions in this draft are marked by asterisks (*****).

I'll be on leave from September 17-28. While I'm away, Priscilla Flattery (382-4387) will coordinate activities in preparation for release of the National Dioxin Study.

Thanks for your continuing cooperation and flexibility!

Addressees: Jim Cummings, OSWER (Mike Cook)
Alec McBride, OW
Peyton Davis, OW
Karen Ellenberger, OSWER/IO
Rita Calvan, OSWER/IO
Stacey Lupton, OCL
Mia Zmud, OSW
Russ Dawson, OA
Amy Dewey, OAR (please provide to OAQPS)
William Whitson, OFA
Priscilla Flattery, OPA
Al Heier, OPA
Adam Sutkus, OCIR
Diane Hicks, OCL/RCRA
Judy Rohrer/Diann Frantz, OCL/Air
Delia Scott, OCL/Water
Bill Prendergast, OCL/OPTS
Regions I-X

9/15/87

COMMUNICATIONS PLAN

NATIONAL DIOXIN STUDY REPORT TO CONGRESS

BACKGROUND

This report is the result of a two-year study to investigate the extent of dioxin (2,3,7,8 TCDD) contamination nationwide. This study was directed in a $7.4 million 1984 Congressional appropriation and was conducted under the National Dioxin Strategy developed to provide a coordinated framework for investigative, remedial, and regulatory activities. It has undergone comprehensive review by the Science Advisory Board.

The investigation consisted of seven "tiers" with roughly decreasing expectation of finding 2,3,7,8,TCDD contamination.

Tier 1 - 2,4,5,TCP production sites and associated waste disposal sites
Tier 2 - sites where 2,4,5-TCP was used as a precursor to make pesticidal products (and associated waste disposal sites)
Tier 3 - sites where 2,4,5-TCP and its derivatives were formulated into pesticidal products
Tier 4 - limited number of combustion sources
(For combustion sources, EPA also tested for the presence of other isomers of dioxins and furans, since previous testing had shown significant levels of these compounds.)
Tier 5 - sites where pesticides derived from 2,4,5-TCP were used
Tier 6 - production sites for other chemicals where 2,3,7,8-TCDD formation may have occurred
Tier 7 - Background (urban/rural soil, fish samples)

SUMMARY OF FINDINGS

o Twenty-one production and 79 waste disposal facilities were identified. (This was considerably fewer than original estimates of 400-500.) As expected, these sites generally had the highest levels and greatest quantities of contamination. The Superfund program is actively responding to sites where dioxin has been identified at levels of concern.

o With the exception of two large facilities, pesticide formulators were not found to be extensively contaminated. EPA Regions have been asked to followup at the 13 facilities found to be contaminated and the 17 large formulators not originally tested. The remaining formulators have also been referred to Superfund for inclusion in the CERCLIS inventory.

o While contamination was found more often at pesticide-use sites than at "background" soil sites, the levels were usually in the low parts per trillion range. 2,3,7,8-TCDD was found infrequently in urban and rarely in rural "background" soil samples at the ppt level.

o Fish contamination seems to be a problem in specific areas such as parts of the Great Lakes. Many areas of the Great Lakes are already the subject of fish consumption advisories for PCBs, mercury and Mirex. Other problem areas include waters affected by certain pulp and paper mill discharges. A joint EPA/paper industry investigation of potential sources of dioxin within certain types of mills is currently underway. As of this time, results of this study are scheduled to be released in conjunction with the release of the National Dioxin Study on October 1.

o There are millions of combustion sources in the United States. Due to high costs of testing ($75-$100K per source), only a small number of the highest priority source categories could be tested. All sources tested in Tier 4 were found to emit CDD and CDF, although not all emitted 2,3,7,8 TCDD. Certain source categories (e.g. Kraft. liquor boilers) have relatively low emissions, while others (e.g. secondary copper smelters) have levels which are considerably higher. Literature data indicate no detectable emissions from utility boilers. Certain source categories produce ash containing CDDs/CDFs.

RELATED REGULATORY ACTIVITIES TO DATE

Regulations have been promulgated to control generation use and disposal of dioxin-contaminated materials. These include:

- cancellation of 2,4,5,T
- listing of certain dioxin wastes as acutely hazardous under RCRA
- additional restrictions on continued use of PCB transformers
- additional use restrictions on the wood preservative pentachlorophenol
- OPTS proposed rule to elicit information on dioxin levels in certain industrial chemicals
- stringent effluent discharge limits placed on Dow Chemical, Midland, Michigan facility.

OTHER DIOXIN-RELATED ACTIVITIES

o §102 Municipal Waste Combustion Report to Congress - issued 7/1/87. Describes the background for regulatory decisions on municipal solid waste issues. Findings focus on emissions, risks, and controls for new and existing municipal incinerators. (contact: Steve Greene, OSW)

o Assessment of Municipal Waste Combustor Emissions under the Clean Air Act - Advanced Notice of Proposed Rulemaking" - proposed 7/1/87. Describes results of EPA's preliminary assessment of air emissions from MWCs and provides EPA's response to petitions filed by NRDC and the States of New York, Connecticut, and Rhode Island. Based on the assessment, the Administrator has judged that MWC emissions may reasonably be anticipated to contribute to the endangerment of public health and welfare. The ANPRM offers EPA's intent to propose regulation of MWC emissions from new or modified MWC facilities under §111(b) of the Clean Air Act.
(contact: Bob Kellam, OAQPS)

o Municipal Waste Combustion Ash Study - study is collecting data on ash characterization, monofills, co-disposal landfills and MSW landfills, and addressing treatment and fugitive air releases. Agency position projected for Fall, 1987. (contact: Steve Greene, OSW)

o Dioxin Update - scientific document; recharacterization of health risks from dioxin (contact: Peter Preuss, ORD)

o Pulp and Paper Study - joint EPA/paper industry investigation of potential sources of dioxin within certain types of paper ***** mills. Projected release - October 1, 1987 - In conjunction with release of the National Dioxin Study (contact: Alec McBride, OW)

EXPECTED IMPACTS

o Because this report is a study of dioxin, we expect considerable public interest in its release. However, information and data from the Study is already in the public domain (e.g. Region V has released Great Lake fish results and the Office of Water has distributed draft results to state agencies) - with no major negative reaction.

o In April, the Agency responded to a massive FOIA request by citizen activists in Oregon (critical of EPA's handling of dioxin issues). It is possible that this group will generate a "counter" report.

o Concern has been expressed about the 1 ppb "trigger" level in soil. This is the benchmark established by CDC for Times Beach. Concern appears to have been somewhat reduced since estimates of the amount of soil consumed by children has subsequently been revised downward.

o Concern has also been expressed about the differences between EPA and FDA assessments of the hazards of fish consumption. (EPA's estimate is considerably more conservative.) The Risk Assessment Council has initiated efforts to resolve these differences.

o Potential emissions from Municipal Waste Combustors is an issue of concern. The National Dioxin Study defers almost totally to the Municipal Waste Combustion Report to Congress and decision to regulate air emissions from municipal waste combustors announced on July 1.

UPDATE:

Greenpeace held press conferences (8/31) and released an open letter to selected Congressional "Members" charging EPA numerous improprieties in developing and communicating the results of the National Dioxin Study/Pulp and Paper Study (9/8). In addition, the Wall Street Journal obtained a draft of the National Dioxin Study and reported on its findings (9/11). **** In subsequent stories, the focus has been on EPA's options for addressing the problems generated by pulp and paper mills.

CONSULTATION/COMMUNICATIONS ACTIVITIES TO DATE

Other Involved Agency Offices: OW, OAQPS, OSWER (OERR, OWPE), Regions, States, OPTS, OEA

Other Federal Agencies: ATSDR (Health Advisories for Contaminated Sites)
FDA (Fish Consumption Advisories)
NIOSH (Evaluations of Worker Exposure)

Environmental groups: EDF (petition for rulemaking)
Greenpeace
Natl Council for Air & Stream Improvement

Business/Industry/Trade: API/NCASI (Pulp & Paper Study)
Dow Chemical
Facilities where contamination detected
CMA
Wood Preservers Institute

Conference call with Regional Public Affairs Officers - April

Regions have released draft portions of the information to interested groups throughout the devlopment of the Report.

Del A to API & ot Contact

Mike Fer[illegible] -

COMMUNICATION ACTIVITIES FOR RELEASE OF STUDY

TIMING:

Package entered Red-Border review - week of July 13 (must be reviewed by OMB following closure of Red Border)

Proposed release - early September

(The Agency is not soliciting public comment on this document.)

INFORMATION MATERIALS:

meeting on dioxin

- National Dioxin Study Report to Congress (OSWER/Cummings)	2000
- Executive Summary (OSWER/Cummings),	500
- Questions and Answers (OSWER/Cummings OW/McBride OAR/Southerland)	500
- Press Release (OPA/Flattery)	500

ACTIVITIES:

Materials to be provided to Regions in advance:

- Draft communications plan with Q&A - July 15
- Executive Summaries - July 15
- Full Report - September 25-28
- press release - when available

****** DRY RUN for briefing participants - September 29, 1pm.

CONGRESSIONAL

- Briefings immediately prior to release - Report/press release/ Q&As to be provided

Energy and Commerce: Finnegan, Gorman, Dodson, Knauss
Fransden, Jacobsen, Forristall
Whetstone, Sabbath, Roberts

Environment and Public Works: Cudlipp, Moore, Powell,
Cummings, Kimball, Cooper, Shimberg

Merchant Marine and Fisheries: Stelle, Moore

Government Operations: Gray

House and Senate Appropriations: Ryan (H) /Mayer (S)

House Public Works - Tyler, Rozsa, Grumbles, Gabel, Goebel
Feddeman, Kopocis, Deitz

Presenter: Mike Cook, Dioxin Management Coordinator

(Support: Jim Cummings, OSWER; Alec McBride, OW; Ed Lillis or Jim Southerland, OAQPS)

(Copies of the Report have been requested by Carolyn Gable/House Public Works; Jane Mebus/Congressman Weber; Ann ______/ Congressman Mrazek)

Regional Congressional coordinators should identify any special calls to be made by HQ.

[NOTE: API is briefing selected Members of Congress on a status report on the joint study. The first briefing is on September 11 This is a reaction to Greenpeace allegations.]

MEDIA

- press release and briefing on day on transmittal to Hill (press briefing will be audio simulcast to Regions)
- Reports/Q&As/document describing Pulp and Paper Study/ press release to be provided

OTHER FEDERAL AGENCIES

(Ongoing interaction - official notification: September 29)

ATSDR (Georgi Jones) Contact: Mike Cook/Jim Cummings

FDA (Kathy Carnevale) Contact: Alec McBride

NIOSH Contact: Alec McBride

****** Officials of the Canadian government will be briefed on the Pulp and Paper study on 9/18.

STATES

- Involved states have been notified of study results.
- ****** Chapters 3,5,6,7 (dealing with fish contamination) to be sent to ASTHO members one week in advance. (OSWER/OCIR)
- ****** Full Report and information on the Pulp and Paper Study to be sent to State Health Officials and Commissioners on September 25. If printing is not completed by 9/25, copies will be xeroxed and sent to the States. (OSWER/OCIR/OPA)
- DC Offices of the Governor receive Executive Summary, Q&A, and press release 10/2 (OCIR)
- Regional offices make courtesy calls to States where appropriate - 9/30 (ie, Minnesota, Michigan, Massachusetts, New York) (Regions)

EXTERNAL GROUPS

- ***** Interested constituency groups will be briefed on October 1, following Hill and press briefings. (OSWER/OW/OCIR)
- Executive summary, Q&A and press release will be provided in 10/2 OCIR mailing (OCIR)

CONTACTS:		
	Susan Bullard, OEA/OSWER	382-5660
	Priscilla Flattery, OPA	382-4387
	Peyton Davis, OW	382-5687
	William Whitson, OPA	475-8792
	Mike Cook, Dioxin Coordinator	382-5543
	Jim Cummings, OSWER	382-4686
	Alec McBride, OW	[illegible] 382-4806
	Jim Southerland, OAQPS	629-5585
	Bill Kuykendall, OAQPS	629-5372

7-2

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 28 1987

OFFICE OF
WATER

NOTE

SUBJECT: Background Information on July 31, 1987 Administrator's Meeting with American Paper Institute - Dioxin Related Issues

FROM: Jim Cummings
Dioxin Management Task Force

TO: Lawrence J. Jensen, Assistant Administrator
Office of Water

THRU: Michael B. Cook
Dioxin Management Coordinator

Subject meeting is at the request of API. They are concerned with two issues:

1) manner of release of the National Dioxin Study Report to Congress;

2) Public health significance and regulatory implications of 2,3,7,8-TCDD contamination which may be found in various discharges/ products/waste streams as a result of the EPA/API study currently underway.

Information on the 5 mill pulp and paper study is contained in a separate briefing paper prepared by Gary Amendola.

The National Dioxin Study is a straightforward recounting of the findings of our nationwide investigation. A brief discussion of toxicology is presented. The report does not dwell on the pulp and paper industry. It discusses fish and sludge contamination and mentions that certain pulp and paper discharges may be a source of contamination. A brief discussion of the cooperative study is also provided.

Our communications strategy calls for a low key release of the report accompanied by briefings for the press and for Congressional staff.

EPA's Dioxin Update Committee recently briefed the Administrator regarding their review of the toxicological underpinnings of 2,3,7,8-TCDD. The Administrator asked the Committee to complete their work and submit it for internal and external peer review. This work has potential implications for the interpretation of the eventual results from the pulp and paper study; however the timing and manner for incorporating the Update Committee's work in existing and prospective regulatory activities has not been determined.

A. McBride 7/30/87

July 31 Meeting with the Administrator and API

Background

- The major purpose of the meeting is essentially the same as a similar meeting held in September, 1986 - to determine the status of EPA's review of its risk assessment for dioxin through the Dioxin Update Committee.
- The paper industry has been concerned with dioxin since 1985 when EPA's national dioxin study discovered dioxin contamimation in fish downstream from several bleached kraft paper mills and, subsequently, in sludges from the paper mill waste treatment plants. This was the first time paper mills had been found to be a significant source of dioxin.
- Both the fish contamination and sludge contamination have public health implications. Three States have issued fishing advisories due to paper mill discharges. Sludge contamination can be a problem if the sludge is used as fertilizer, particularly on grazing lands. Three States have adopted sludge criteria.
- In June, 1986, EPA (OWRS) and the paper industry entered into an agreement to jointly study how dioxin enters paper mills through intensive investigations at five mills.

Current Status

- The joint study has been essentially completed, with excellent cooperation from industry. Preliminary results are available for most of the samples.
- Dioxin appears to be formed in the paper making process during the bleaching of the pulp with chlorine.
- Dioxin has been detected in sludges from all five mills, in bleached pulps from four of the five mills, and in final effluents from three of the five mills.
- Levels of dioxin in the final effluent (without stream dilution) are up to more than 10,000 times the EPA criteria (based on a risk level of 1 in a million). Discharge loadings from one mill are approximately 50 times higher than the current discharge (which reflects recent installation of additional treatment) from Dow Chemical's Midland Plant, a well known source of dioxin.
- In addition to the joint study, EPA is currently collecting fish tissue samples from downstream of the approximately 100 other bleached kraft paper mills.

The industry is particularly concerned with the potential public health significance of dioxin in a wide range of paper products, including personal care products and food contact products. Both EPA and the industry are conducting risk assessments.

Next Steps

- The report on the results of the joint study is expected to be issued in October of this year.
- EPA has requested that industry submit in September proposals for three follow-up activities: 1) a screening survey of all bleached kraft mills, 2) a wastewater treatability pilot program, and 3) a research program for investigating manufacturing process modifications.

AGENDA ITEMS FOR MEETING WITH AMERICAN PAPER INSTITUTE

1. Release of National Dioxin Study
2. Handling of information relating to the Five-Mill Study
3. Agency's re-evaluation of dioxin-risk assessment, in general. They feel LMT needs to know what's at stake in the re-evaluation since dioxin is turning up in paper products.

Their presentation will take no more than 15 minutes.
Nothing critical of staff work on the five-mill study.

① Release of National Dioxin Study
② Five-Mill Study -- Coordinate
③ Reassuring public

As of 7/31/87 - 6:30 PM

7-3

SCHEDULE FOR LEE M. THOMAS
FRIDAY, JULY 31, 1987

9:50 AM - 11:00 AM	Meeting w/Barnes/Kinghorn/Ryan/Fisher/ Pesachowitz/Budget Staff RE: Budget Review LMT's Office
11:00 AM - 12:15 PM	Meeting w/Long/Claussen/Fisher/Campbell/ Clay/Richard Benedict/Losey RE: General Discussion LMT's Office
12:30 PM - 1:00 PM	Lunch w/Barnes Dining Room
1:00 PM - 2:00 PM	Meeting w/Barnes/Moore/Quinn/Fisher/Dawson RE: General Discussion LMT's Office
2:00 PM	Staff Time
2:50 PM - 3:30 PM	Meeting w/Barnes/Blake RE: General Discussion LMT's Office
3:30 PM	Staff Time
4:30 PM - 5:30 PM	Meeting w/American Paper Institute Reps./ Jensen/Cook/Newill/Taylor/McGuinness/ Moore/Wayland RE: National Dioxin Study Report to Congress LMT's Office
5:30 PM - 6:30 PM	Meeting w/Fisher/Dawson/Englert/Thorne RE: Schedule LMT's Office

PAPER INDUSTRY DELEGATION

MEETING WITH
EPA ADMINISTRATOR
Friday, July 31, 1987
4:30 p.m.

Thomas C. Norris
President & Chief Executive Officer
P. H. Glatfelter Company
Spring Grove, Pennsylvania

Member, Executive Committee
American Paper Institute
(trade association)

Member, Board of Governors
National Council of the Paper Industry for
Air and Stream Improvement (NCASI)
(research organization)

Chairman
Paper Industry's Dioxin Task Group

Carol L. Raulston
Vice President, Government Affairs
American Paper Institute
Washington, D. C.

Michael C. Farrar
Vice President, Environment and Health
American Paper Institute
Washington, D. C.

7-4

PAPER INDUSTRY DELEGATION

MONDAY, SEPTEMBER 22, 1986

1:00PM MONDAY, SEP. 22/86
DIOXIN COOPERATIVE STUDY/
RISK ASSESSMENT

John Georges
Chairman & CEO
International Paper Co.
New York City

Brenton S. Halsey
Chairman & CEO
James River Corp.
Richmond, Va.

Richard C. Wigger
Vice President,
Environmental Affairs
Champion International
Stamford, Conn.

Robert B. Hayes
Director, Corp. Communications
Boise Cascade Corp.
Boise, Idaho

Russell E. Kross
Director, Corp. Human &
Environmental Protection Dept.
Mead Corporation
Dayton, Ohio

Clifford C. (Kip) Howlett
Director, Government Affairs--
Environment, Health &
Chemical Safety
Georgia-Pacific Corp.
Washington, D.C.

Russell Blosser
Technical Director
National Council for Air
& Stream Improvement
New York City

Michael C. Farrar
Vice-President, Environment
and Health
American Paper Institute/
National Forest Products Assoc.
Washington, D.C.

John L. Festa
Director, Chemical Control
American Paper Institute/
National Forest Products Assoc.
Washington, D.C.

MEETING WITH AMERICAN PAPER INSTITUTE REPRESENTATIVES
MONDAY, SEPTEMBER 22, 1986
1:00PM
ROOM 1103 WEST TOWER

JOHN GEORGES	Chief Executive Officer Office of International Paper
BRENT HASLEY	Chief Executive Officer James River Co.
DICK WIGGER	Director for Environment Champion International
BOB HAYES	Director of Communications Boise-Cascade
RUSS KROSS	Director for Environment Mead Corp.
KIP HOWLETT	Director, Government Affairs Georgia-Pacific
RUSS BLOSSER	Vice President of National Council on Air and Stream Improvement
*MIKE FARRAR	Vice President for Environment API
JOHN FESTA	API-SPA Staff

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* Mr. Farrar will bring with him a more complete list for distribution in the meeting.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
WATER

MEMORANDUM

SUBJECT: September 22 Meeting with the American Paper Institute

FROM: Lawrence J. Jensen
Assistant Administrator (WH-556)

TO: Lee M. Thomas
Administrator (A-100)

This memorandum is to provide you with some brief background material for your September 22 meeting with the American Paper Institute (API). The API called this meeting to discuss the joint study we are conducting with the paper industry of dioxin contamination in pulp and paper mills, and to review risk assessment efforts related to dioxin which will allow interpretation of the study findings.

The issue of dioxin contamination in pulp and paper mills surfaced during the national dioxin study when we discovered relatively high levels of dioxin in fish downstream from several of these mills. (Attachment 1 provides a brief summary of the events related to this problem.) Subsequent investigations revealed low levels of dioxin in the wastewater treatment sludges of mills which used a chlorine bleaching process on their pulp. Region V, working with my staff, then issued a letter under Section 308 of the Clean Water Act to the Boise Cascade Corporation mill in International Falls, Minnesota, requesting that Boise Cascade allow access to the mill and provide assistance in conducting a detailed sampling program there. We had already found dioxin in fish downstream from this particular mill and in the mill's wastewater treatment sludge.

In response to this request and to their concern over the problem, the industry proposed a joint study of five mills across the country. We eventually worked out the details of an agreement whereby we (with appropriate State agency participation) would jointly conduct the sampling at these mills and would share the very expensive analytical costs, with industry paying 75 percent of these costs. (Attachment 2 is a copy of the agreement with a transmittal memorandum to the Regional Water and Environmental

Services Division Directors.) Region V then withdrew the Section 308 letter, which was a major issue for the industry. So far, the study has progressed very smoothly. Sampling has been completed at two mills, and we expect to collect samples from the other three mills by early December. Final analytical results should be available about three months after sampling has been completed.

Throughout this process, there have been repeated questions raised as to how the data would be interpreted and what levels of dioxin would be considered a significant problem in different media. The exposure routes of immediate concern are fish contamination associated with the wastewater discharges and soil contamination (particularly of agricultural grazing lands) associated with the common practice of landspreading the wastewater treatment sludge. Both of these potential problems have led to substantial public reaction in several States (Maine, Minnesota, Wisconsin, Ohio), and the industry is very anxious to learn the results of the dioxin risk assessment review being conducted by Jack Moore. I understand Jack will be preparing a separate briefing paper on that issue.

Please call me or Alec McBride (382-7046) of my staff if you have any questions concerning this material.

Attachments

cc: Jack Moore

September, 1986

Dioxin and the Pulp and Paper Industry - Recent Events

April, 1984 - Region V selected the Petenwell Flowage in the Wisconsin River as a tier 5 (pesticide use) site, based on the State of Wisconsin's finding of dioxin in fish from the area and on the hypothesis that the source of dioxin was historical use of 2,4,5-TCP as a slimicide on paper rolling mills in the area. (EPA's effluent guidelines for the paper industry essentially prohibit current use of chlorophenol based slimicides in paper mills.)

March, 1985 - Relatively high levels (up to 29 ppt) of dioxin were found in whole fish from the Androscoggin River in Maine. The State of Maine issued a fish consumption advisory, even though the initial filet samples were only 5 ppt as compared to the FDA advisory level of 25 ppt for the Great Lakes area. Further sampling of the river and of waste treatment sludges from paper mills in the area was planned.

September, 1985 - Dioxin levels of up to 51 ppt were found in the Maine paper mill sludges, and dioxin was detected at 5 ppt in sludge from a POTW (Kennebec) receiving paper mill wastes. EPA Region I and the State of Maine asked the Centers for Disease Control (CDC) whether continued landspreading of the sludges should be allowed.

October, 1985 - Officials from NCASI (National Council of the Paper Industry for Air and Stream Improvement) asked to work with EPA on investigating potential sources of dioxin in paper mills. Subsequent meetings with paper industry officials (NCASI and the American Paper Institute - API) revealed that the industry believes the chlorine bleaching of pulp to be a more likely source of dioxin than historical use of chlorophenol based slimicides. NCASI has provided a list of about 150 mills which it believes to be the universe of mills doing chlorine bleaching.

October, 1985 - CDC advised Region I and the State of Maine that landspreading of sludges containing greater than 6 ppt of dioxin should not be allowed on lands where grazing may occur. Other landspreading uses (on silage crop lands, landfilling, etc.) are not likely to be a problem. Public pressure began to form to prevent any landspreading of contaminated sludge.

⑲

' formation general —
Lab-testing issues +
impact on — lining)
(Harvey, a test)
Dioxin issues
Fed / State consistency
Dioxin risk assessment process
Reassessment + etc.
Risk Assessment + Guidelines
Listings/ Preambles
Public relations

Water
Air
Waste
Toxics

Chloroform — 1/4 billion annually
TCLP — 14 times; increase — haz. waste
25 bringing in chloroform waste

October, 1985 - High levels (85 ppt) of dioxin were found in whole fish from the Rainy River (border of Minnesota and Canada) in the vicinity of paper mills. The State of Minnesota issued a consumption advisory, and additional sampling of fish and paper mill sludges and effluents was conducted.

December, 1985 - Results from the analysis of a large number of fish filet samples from the Rainy River (by both the U.S. and Canada) showed the highest level found to be 12 ppt. The Canadians, who use a different toxicological model from those used by U.S. agencies, do not consider this to be a level of concern, while the State of Minnesota has issued a complex advisory based on CDC's toxicological model, even though the levels are well below the FDA advisory level.

February, 1986 - ORD Duluth and Wright State University completed the analysis of sludge samples from Wisconsin and Minnesota mills. Levels of 75-400 ppt were found at mills using chlorine bleaching, with the highest concentration being from the Boise-Cascade mill on the Rainy River.

March, 1986 - Region V presented a general proposal to MDSD and ITD at a meeting in Washington to do a relatively detailed sampling study of 2-3 mills in an effort to determine the source of dioxin in the sludges. This was modified during the meeting and became a plan to perform a highly detailed study of only the Boise-Cascade mill in Minnesota.

March, 1986 - NCASI responded to the proposed EPA plan with a proposal for a broader joint EPA/ NCASI survey of about six plants. The proposal would include a formal agreement between EPA and NCASI outlining the activities and funding each party would be responsible for. NCASI wanted to avoid singling out any particular mill and also wanted to appear as being responsive to the problem.

June, 1986 - After a series of meetings, EPA and API representatives signed an agreement to jointly investigate potential sources of dioxin at five paper mills across the country (the Boise Cascade mill in Minnesota, a Mead Paper mill in Ohio, an International Paper mill in Maine, a Champion Paper mill in Texas, and a James River mill in Oregon).

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 19 1986

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: September 22 Meeting With the American Paper Institute -- BACKGROUND INFORMATION

FROM: John A. Moore
Assistant Administrator
for Pesticides and Toxic Substances

TO: Lee M. Thomas
Administrator (A-100)

Attached you will find a copy of the Report of the "Dioxin" Update Committee which Dr. Moore convened on July 1-2, 1986 with the express intent of obtaining the views of recognized experts on three particular issues associated with "dioxins":

a. Human health consequences
b. Bioavailability
c. Immunotoxicity
d. Mechanism of Action
e. Appropriate risk assessment methodologies

In addition, the Committee chose to include another topic of concern: Reproductive and Teratogenic Effects

This document was distributed to the Risk Assessment Council on August 27 and will be the subject of discussion at the next meeting of the Council. It is expected that the Agency will consider the views expressed in this Report as it continues addressing "dioxin" problems faced by the Agency.

The Report has also been submitted to Congressman Dingell in response to his letter of inquiry regarding the "Dioxin" Update Committee.

In addition, within a two month period, four separate Science Advisory Board groups will have looked at the interrelated portions of EPA's "dioxin ball of wax".

(22)

1. In July (?) an SAB panel met in Hampton, VA to review progress on the Agency's efforts on municipal waste combustion, a major issue of which is emissions of "dioxins" reulsting from such combustion.
2. On August 11-12, an SAB panel met to review the draft report of the 7 tiered, multi-million dollar investigation the Agency has been conducting over the past three years into the presence and extent of "dioxin" contamination in the U.S.
3. During the first week in September an SAB panel will meet In Kansas City to review an OHEA Health Assessment Document on polychlorinated dibenzofurans, chemicals often covered by the general rubric of "dioxins".
4. On September 8-9 yet another SAB panel will meet in Washington to review a paper produced by the Risk Assessment Forum on an approach for estimating the risks posed by exposure to "dioxins" other than the infamous 2,3,7,8-TCDD.

It can be anticipated that these reviews will result in an emerging consensus on some points, including areas to which more attention needs to be paid; e.g., site-specific consideration of bioavailability and appropriate quantitative risk assessment approaches for "dioxins".

On the inter-agency front, the FDA is being sued on their position on the risks of consuming 2,3,7,8-TCDD in fish. As is often the case during such litigious times, the agency is less free to engage in substantive discussions about the merits of some position other than their own.

Dr. Renate Kimbrough of CDC, who has figured prominently in the assessment of "dioxins" by that agency, has been active on at least two of the SAB reviews referred to above.

On a separate front, a pending epidemiologic study scheduled for publication in early September will likely raise new questions about the human health consequences of exposure to "dioxin" contaminated materials.

Attachment

23

INTRODUCTION TO THE REPORT OF THE "DIOXIN" UPDATE COMMITTEE

On July 1-2, 1986, a group of scientists met together in Alexandria, VA, to discuss a set of scientific issues associated with "dioxins", a family of chemically related compounds, some of whose members have exhibited very high toxicity in standard toxicology test systems. Dr. John A. Moore, Assistant Administrator of the Office of Pesticides and Toxic Substances of EPA convened this panel to determine their views on five specific areas of "dioxin" toxicology and risk assessment:

a. Human health consequences
b. Immunotoxicity
c. Bioavailability
d. Mechanism of action
e. Appropriate risk assessment procedures

The Committee, chaired by Dr. Henry Pitot of the McArdle Laoboratory for Cancer Research at the University of Wisconsin, was composed of individuals who were selected on the basis of their demonstrated scientific competence and contributions to the area of toxicity of "dioxins". In addition to Dr. Moore, there were three observers from EPA present during the meeting. A list of those present can be found at the end of the report.

In preparation for the meeting, five of the participants were each asked to prepare a short background paper on one of the five issues referred to above. The papers provided a jumping-off point for a free, open discussion of the issues. Under the guidance of the Chair, the participants reached consensus Conclusions which form the substance of the Report for the "Dioxin" Update Committee. Attached to the Conclusions are the papers discussing each of the issue areas. Some of the papers were re-drafted as a result of discussions at the meeting. In addition, a sixth paper on Teratology and Reproduction was prepared by Dr. Kimbrough at the request of the Committee.

This report has been received as information by the Agency and will be considered, along with all other relevant information, as a part of any Agency decisionmaking process.

The Office of Pesticides and Toxic Substances
August 28, 1986

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2H-15

Amendola
9-22-88

WAGNER
- 12 MILLS – VARYING PROCESSES
- UNTREATED / TREATED TO WW
- PROCESS EVALUATION –

- NEED RISK ASSESSMENT

8/12 MILLS AT END OF YEAR
5 ~~[illegible]~~ YEARS STUDY AT EPA

---

12 MILL SLUDGES NOT IN JOINT STUDY

- BURNING DISCHARGED SLUDGES / SALT WATER REGIME

- BIOACCUMULATION IN FISH IF IT SHOULD BE FOUND IN EFFLUENT

Amendola's notes
On meeting w/
API and Lee Thomas

RISK ASSESSMENT – JOHN GEORGES
~ FRAMEWORK FOR ~~[illegible]~~ PARTICIPATION IN
ESTABLISHING EXTENT OF RISK
~ WANT STRONG NATIONAL DIRECTION
VS STATES
~ WANT BETTER RISK ASSESSMENT EFFORTS
~ INITIATORS ~~[illegible]~~ VS PROMOTERS
~ MORE SCIENCE ~
DON'T WANT TO SPEND $ ON NON-PROBLEMS
~ CHLOROFORM – ANALOGOUS PROBLEM.

㉕

PUBLIC RELATIONS

BOB HATCH - BOISE CA

PUBLIC REACTIONS
- WANT TO AVOID BEING STAMPEDED INTO ACTION WITHOUT SCIENTIFIC DATA
- REGULATORS IN SOME STATES HAVE ACTED PREMATURELY
- HAVE NOT HAD ADVERSE PUBLIC REACTIONS TO DATE

THOMAS
- CONTINUE COOPERATIVE EFFORT

COOK
- DIOXIN STUDY BEING COMPLETED
- MUNICIPAL WASTE COMBUSTORS
  ~ SHOULD THERE BE A REGULATORY APPROACH
- WATER -
  CONTINUED WORK (COOPERATIVE STUDY)
- PESTICIDES - TAKEN ACTION ON CERTAIN DIOXIN CONTAINING PESTICIDES
- CONTINUING RESEARCH ~ MOBILE INCINERATOR

JACK MOORE

- TOXIC EQUIVALENT FACTORS ENDORSED BY SAB
- 9/10 EXPERTS CONVENED IN JULY
  - ~~[illegible]~~ MATRIX MAY BE CRITICAL TO BIOAVAILABILITY *
  - BINDING TO SITE MAY BE REVERSIBLE
    - ? NEW OR MODIFIED MODEL MAY BE MORE APPROPRIATE

THOMAS - LONG TERM BEFORE ~~#~~ ISSUES WORKED OUT TO POINT WHERE THEY AFFECT RISK ASSESSMENTS

* MOORE - MATRIX EFFECT MAY BE SOMETHING THAT CAN BE CONSIDERED MORE QUICKLY

1. Areas of Cooperation

COOK - CONTRACT FOR JOINT WORK.

- CONTACT FOR CONTACTS IN OTHER AREAS (ie RISK ASSESSMENT)

Dioxin levels high in some Lakes fish

Detroit News

By Dudley K. Pierson
News Lansing Bureau, May 13 '86

LANSING — Sport fish from some areas of the Great Lakes and tributaries should not be eaten regularly because they contain unsatisfactory levels of the cancer-causing chemical dioxin, reports the U.S. Environmental Protection Agency (EPA).

The warning came yesterday as the EPA released results of a $2 million study that tested carp and other fish for the most toxic form of dioxin.

The chemical was found in 29 of 50 areas where carp were sampled throughout the Great Lakes Basin. Most of the locations are in waters already thought to be polluted with industrial chemicals. But these are the first general warnings based on dioxin levels.

CARP, A bottom-feeding fish high in fat where toxic chemicals tend to be stored, is used by the EPA as a barometer for toxics in more desireable sport fish.

"There may be a significant enough magnitude (of dioxin) to warrant concern," said Peter Wise, the EPA's director of the Great Lakes National Program Office. He said the EPA needs to do more monitoring of sport fish.

The single highest level of dioxin was found at Midland, the home of Dow Chemical Co., where Tittabawassee River carp containing 525 parts per trillion of dioxin were taken. X

Fish to avoid

Highest dioxin level: Tittabawassee River, Midland

Lower [illegible]: Rouge River, Detroit; Flint River, Flint

Just above health risk: Detroit River; Grand River, Grand Ledge; Saginaw Bay

Please see Dioxin /9A

28

High levels found in some Great Lakes fish

Detroit News May 13 '86

From page 1A

EPA officials said they assumed "that human health concerns could begin to be raised at concentrations of about 1 part per trillion."

CARP CONTAINING 24.1 parts per trillion were found in the Rouge River in Detroit and carp containing from 2.7 to 14 parts per trillion were found in the Detroit River Trenton Channel beside Grosse Ile. In the Detroit River near Belle Isle, carp samples contained 9 parts per trillion.

To calculate the dioxin levels in sport fish, the EPA used a rule of thumb that sport fish probably contain from 1/5 to 1/8 the amount of dioxin found in bottom feeders such as carp.

Outstate EPA researchers were concerned about dioxin levels in fish taken from the Flint River, Saginaw Bay, and the Grand River at Grand Ledge.

In general the study showed that Lake Ontario contained the highest levels of dioxin-contaminated carp, followed by lakes Huron and Michigan, then Erie and Superior.

THE STUDY, begun in 1983, as part of a national dioxin investigation that will be released to Congress this summer, said EPA Regional Administrator Valdas Adamkus. He said it is not intended to show which fish are safe to eat, but to provide a "snapshot" of a relatively few number of fish spread over a wide geographic area.

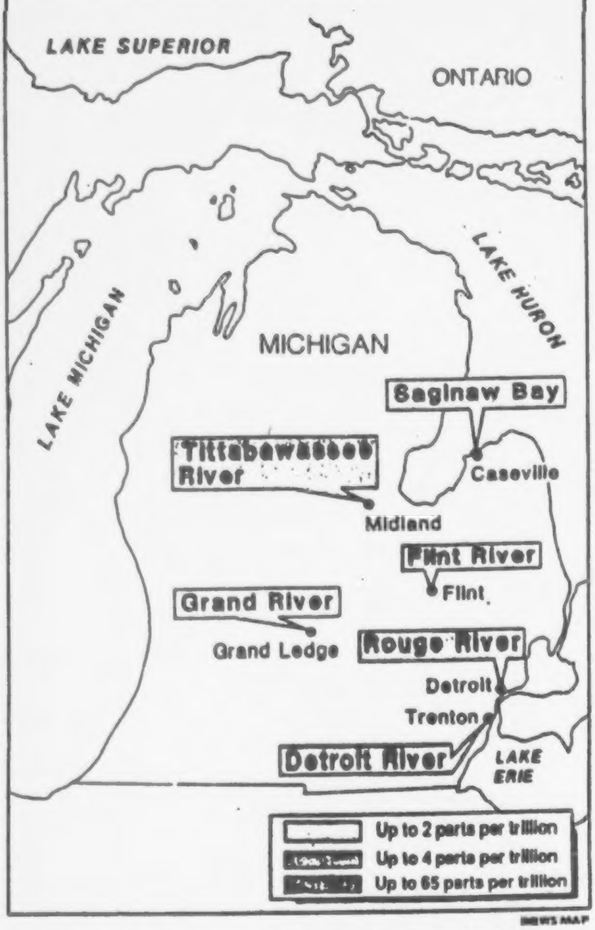
However, the snapshot included a limited number of samples of skinned lake trout fillets caught in Lakes Michigan, Huron, Ontario, St. Clair and Erie. Several of these contained levels of dioxins high enough for the EPA to warn against eating them regularly.

Walleye from Anchor Bay in Lake St. Clair, for instance, contained dioxin from 2.3 parts per trillion to 5.8 parts per trillion. Lake trout from Lake Huron near Alpena had from 5 parts per trillion to 9.8 parts per trillion.

In most of the areas where the EPA found dioxin-contaminated carp, fish advisories are already in effect warning anglers which fish are unsafe to eat. These advisories had been issued based on findings of PCBs, DDT and other toxic chemicals.

DIOXIN, CONSIDERED to be one of the most toxic chemical substances known, can cause cancers, particularly soft-tissue sarcoma, EPA

Base ·r dioxin in carp, EPA officia ·e sport fish in certain areas o ·an contain more than 1 part per trillion of dioxin — enough to make them a health risk to people who eat them.



NEWS MAP

sources, industrial wastewater discharges.

Wise, of the Great Lakes National Program Office said toxic chemical contaminants in Great Lakes fish are "generally" higher than in other waters. That's due to heavy industrial and agricultural activities within the Great Lakes Basin, he said.

"In a lot of national studies we find Great Lakes fish are very high and that's because they (the lakes) have a lot of fat, old fish," he said.

He added that levels of other chemicals in Great Lakes fish appear to be decreasing and that indicates the amount of dioxin might also be declining.

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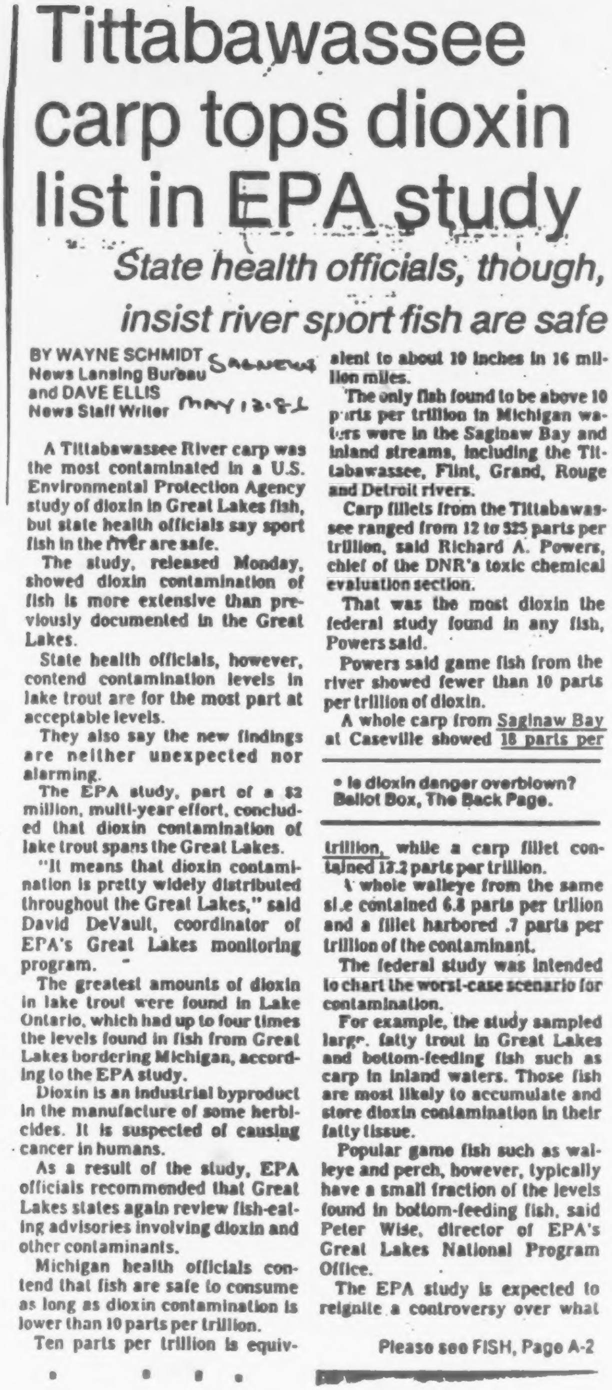

Tittabawassee carp tops dioxin list in EPA study

State health officials, though, insist river sport fish are safe

BY WAYNE SCHMIDT
News Lansing Bureau
and DAVE ELLIS
News Staff Writer

Sag News
May 13-86

A Tittabawassee River carp was the most contaminated in a U.S. Environmental Protection Agency study of dioxin in Great Lakes fish, but state health officials say sport fish in the river are safe.

The study, released Monday, showed dioxin contamination of fish is more extensive than previously documented in the Great Lakes.

State health officials, however, contend contamination levels in lake trout are for the most part at acceptable levels.

They also say the new findings are neither unexpected nor alarming.

The EPA study, part of a $2 million, multi-year effort, concluded that dioxin contamination of lake trout spans the Great Lakes.

"It means that dioxin contamination is pretty widely distributed throughout the Great Lakes," said David DeVault, coordinator of EPA's Great Lakes monitoring program.

The greatest amounts of dioxin in lake trout were found in Lake Ontario, which had up to four times the levels found in fish from Great Lakes bordering Michigan, according to the EPA study.

Dioxin is an industrial byproduct in the manufacture of some herbicides. It is suspected of causing cancer in humans.

As a result of the study, EPA officials recommended that Great Lakes states again review fish-eating advisories involving dioxin and other contaminants.

Michigan health officials contend that fish are safe to consume as long as dioxin contamination is lower than 10 parts per trillion.

Ten parts per trillion is equivalent to about 10 inches in 16 million miles.

The only fish found to be above 10 parts per trillion in Michigan waters were in the Saginaw Bay and inland streams, including the Tittabawassee, Flint, Grand, Rouge and Detroit rivers.

Carp fillets from the Tittabawassee ranged from 12 to 525 parts per trillion, said Richard A. Powers, chief of the DNR's toxic chemical evaluation section.

That was the most dioxin the federal study found in any fish, Powers said.

Powers said game fish from the river showed fewer than 10 parts per trillion of dioxin.

A whole carp from Saginaw Bay at Caseville showed 18 parts per trillion, while a carp fillet contained 13.2 parts per trillion.

A whole walleye from the same site contained 6.8 parts per trillion and a fillet harbored .7 parts per trillion of the contaminant.

The federal study was intended to chart the worst-case scenario for contamination.

For example, the study sampled large, fatty trout in Great Lakes and bottom-feeding fish such as carp in inland waters. Those fish are most likely to accumulate and store dioxin contamination in their fatty tissue.

Popular game fish such as walleye and perch, however, typically have a small fraction of the levels found in bottom-feeding fish, said Peter Wise, director of EPA's Great Lakes National Program Office.

The EPA study is expected to reignite a controversy over what

- Is dioxin danger overblown? Ballot Box, The Back Page.

Please see FISH, Page A-2

Saginaw, Michigan News, May 13, 1986

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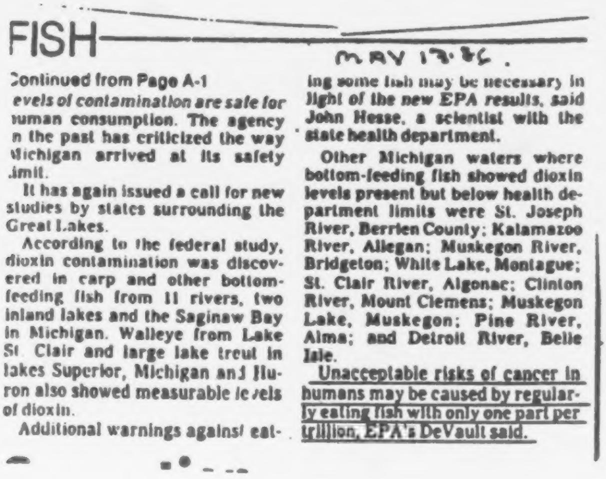

FISH

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Continued from Page A-1

evels of contamination are safe for uman consumption. The agency n the past has criticized the way Michigan arrived at its safety limit.

It has again issued a call for new studies by states surrounding the Great Lakes.

According to the federal study, dioxin contamination was discovered in carp and other bottom-feeding fish from 11 rivers, two inland lakes and the Saginaw Bay in Michigan. Walleye from Lake St. Clair and large lake trout in lakes Superior, Michigan and Huron also showed measurable levels of dioxin.

Additional warnings against eating some fish may be necessary in light of the new EPA results, said John Hesse, a scientist with the state health department.

Other Michigan waters where bottom-feeding fish showed dioxin levels present but below health department limits were St. Joseph River, Berrien County; Kalamazoo River, Allegan; Muskegon River, Bridgeton; White Lake, Montague; St. Clair River, Algonac; Clinton River, Mount Clemens; Muskegon Lake, Muskegon; Pine River, Alma; and Detroit River, Belle Isle.

Unacceptable risks of cancer in humans may be caused by regularly eating fish with only one part per trillion, EPA's DeVault said.

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North Carolina
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6/24/88

EPA Environmental News

(404) 347-3004

RESULTS OF DIOXIN TESTS OF FISH TAKEN FROM THE PIGEON RIVER IN NORTH CAROLINA AND TENNESSEE

The U.S. Environmental Protection Agency (EPA) and the States of North Carolina and Tennessee jointly announced today the results of sampling for dioxin in fish taken from the Pigeon River and the Waterville Reservoir in North Carolina and Douglas Reservoir in Tennessee during the week of April 18, 1988. Fifteen different species of fish were sampled including both sport and bottom-feeding fish. One fish sample collected from the Pigeon River at Clyde, North Carolina in the fall of 1987 and two fish samples collected from the Pigeon River upstream of Newport, Tennessee, previously suggested possible dioxin contamination of Pigeon River fish.

A summary of these results and data from previous sampling of the Pigeon River are included in the following table. These results are reported in terms of total dioxin (2,3,7,8-TCDD) toxic equivalent values. These values are based on the measurement of various chlorinated dioxin and furan isomers and a comparison of their respective toxicities with the most toxic dioxin, 2,3,7,8-TCDD.

Dioxin is classified as a probable human carcinogen by EPA. The Food and Drug Administration recommends fish consumption advisories when dioxin levels in fish fillets exceed a level of concern of 25 parts per trillion.

In Douglas Reservoir in Tennessee, more than 60 fish were collected representing five species. Although traces of dioxin were found to be present in some of the largemouth bass, channel catfish, and smallmouth buffalo, all the values were below the minimum laboratory quantitation limit of the test - one part per trillion. Carp fillet samples ranged from less than one to 1.6 parts per trillion. The analysis of whole carp samples ranged from 2.7 to 4.7 parts per trillion. Dioxin was not detected in a composite sample of the fillets of two blue catfish.

The State of Tennessee does not find as a result of this data that dioxin represents a public health threat to consumers of fish from Douglas Lake. Additional Douglas Lake fish samples have been collected by the State of Tennessee and will be analyzed for dioxin. These results will be released to the public as soon as they become available.

-more-

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In Waterville Reservoir in North Carolina, dioxin was found to be present in all of the samples except one. That sample, a composite of two small brown trout, was thought to be the result of capturing two fish from a recent fish stocking by the North Carolina Wildlife Resources Commission. Each spring, staff of the Wildlife Resources Commission routinely stock Jonathan Creek, a tributary to the Pigeon River, with small brown trout usually 8-12 inches in length.

The study of dioxin in fish focused on the amount of dioxin in the edible portion of fish - the fish fillet. In Waterville Reservoir, the results of fish composite samples were as follows:

- fillets of largemouth bass ranged from 10 - 12 parts per trillion;
- fillets of black crappie ranged from 6.9 - 8.4 parts per trillion; and
- fillets of black bullhead ranged from 3.4 - 13 parts per trillion

In addition to composite samples, several individual fish fillets were analyzed for dioxin. A 12 pound brown trout was found to have a dioxin concentration in the fillet of 80 parts per trillion, while a muskie and a smallmouth bass had levels of 10 and 11 parts per trillion, respectively. No dioxin was detected at the minimum quantitation limit (one part per trillion) in any of the fish fillet samples from the Pigeon River collected above the Town of Canton. However, a white sucker whole fish sample (both the edible portion of the fish and the portions not normally eaten) from the Pigeon River above Canton did show a small trace of dioxin.

The State Health Director of North Carolina, Dr. Ronald Levine, recommends that no fish caught from the Pigeon River between Canton, North Carolina and the Tennessee state line be consumed. This recommendation is based on laboratory findings that showed low levels of dioxins to be present in fish caught in the Pigeon River. Dioxins are known to cause cancer, birth defects, and reproductive toxicity in laboratory animals at very small doses. Therefore, the levels of dioxin found in fish from the Waterville Reservoir indicate that a public health concern exists. A prudent recommendation that no fish be consumed from the whole river segment is warranted until further sampling results justify a modification to this recommendation. Because of the physical properties and low levels of dioxins found in fish, recreational activities such as swimming, wading, and other forms of skin contact including catching and releasing fish, are not believed to represent a significant health hazard.

-0- June 24, 1988

/CONTACT: Hagan Thompson of EPA, 404/347-3004

Table 1. Total dioxin (2,3,7,8-TCDD equivalents) in fish tissue by species and geographic area in the Pigeon River System
(only a single value was obtained where a range is not indicated)
J = estimated value; ND = material was analyzed for but not detected
(parts per trillion)

	Douglas Reservoir, TN			Above Newport, TN			Waterville Reservoir, NC			Clyde, North Carolina			Above Canton, NC		
	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.	Avg.	Min.	Max.
SPORTFISH															
Composite filets															
Largemouth Bass	0.14J	0.11J	0.17J				11.3	10.0	12.0						
Black Crappie							7.7	6.9	8.4						
Bluegill										7.7					
Rock Bass													ND		
Composite Wholebody															
Brown Trout							ND								
Single filets															
Rock Bass				0.17J											
Brown Trout							80.0								
Largemouth Bass							12.0								
Muskellunge							10.0								
Smallmouth Bass							11.0								
Green Sunfish													ND		
BOTTOM FEEDERS															
Composite filets															
Carp	1.0J	0.36J	1.6												
Black Bullhead							8.6	3.4	13.0						
Channel Catfish	0.98J														
Blue Catfish	ND														
Smallmouth Buffalo	0.57J														
Single filets															
Carp										5.8					
Northern Hog Sucker													ND		
Composite Wholebody															
Carp	3.5	2.4	4.7				36								
White Sucker							51.0			92.1			0.79J		
Single Wholebody															
Carp				25.2			39.0								
White Sucker							2.3								

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IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF OREGON

CAROL VAN STRUM, Plaintiff, v. U.S. ENVIRONMENTAL PROTECTION AGENCY; Lee M. Thomas, Administrator, Defendant.	Civil No. 87-6031-RE ORDER

Plaintiff's motion for discovery is GRANTED. This case is stayed to permit discovery. Plaintiff's motion for a protective order is DENIED. EPA's motion for summary judgment is DENIED. Plaintiff's motion for summary judgment is DENIED.

IT IS SO ORDERED.

DATED this 3 day of November, 1987.

Owen M. Panner
Owen M. Panner
United States District Judge

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(35)

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IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF OREGON

CAROL VAN STRUM,

Plaintiff,

v.

U.S. ENVIRONMENTAL PROTECTION AGENCY; Lee M. Thomas, Administrator,

Defendant.

Civil No. 87-6031-[illegible]

OPINION

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(36)

PANNER, J.

This suit was filed pursuant to the Freedom of Information Act, 5 U.S.C. § 552, to compel the United States Environmental Protection Agency (EPA) to release to plaintiff Carol Van Strum certain studies relating to dioxin. Both parties filed motions for summary judgment or partial summary judgment. Plaintiff has also moved for a stay to allow discovery and for an order prohibiting government destruction of evidence. I grant plaintiff's motion for discovery and stay the case.

BACKGROUND

Plaintiff and her husband, Paul Merrell, have a long-standing personal and professional interest in contamination of the environment by the ultra-toxic chemical dioxin.[1] Dioxin, known as 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), is a chemical contaminant formed in certain manufacturing processes. It is said to be the most toxic simple organic molecule known. Contamination is measured in parts per trillion. A threshold limit below which no toxic effects occur has never been

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[1] They were parties in a series of cases to obtain relief against chemical spraying of the forests adjacent to their residence in western Oregon. Citizens Against Toxic Sprays v. Bergland, 428 F. Supp. 908 (D. Or. 1977); Save Our ecoSystems/Merrell v. Clark, 747 F.2d 1240 (9th Cir. 1984). Plaintiff is the author of A Bitter Fog: Herbicides & Human Rights (1983). Plaintiff and her husband are authors of No Margin of Safety: A Preliminary Report on Dioxin Pollution and the Need for Emergency Action in the Pulp and Paper Industry (1987). She states that the documents requested in this case are preparation for a treatise and series of articles on the history of dioxin as a political phenomenon.

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demonstrated. *See generally* *Citizens Against Toxic Sprays v. Bergland*, 428 F. Supp. 908, 927-32 (D. Or. 1977). To deal with this problem, EPA established a "Dioxin Strategy" and a Dioxin Strategy Task Force. In 1984 the EPA received a special appropriation from Congress to conduct the National Dioxin Study (NDS), which was to determine the extent of dioxin contamination in the environment. Seven categories, or tiers, were established to facilitate an orderly investigation. They range from the most likely contaminated sites to least likely, as follows:

Tier 1: 2,4,5-trichlorophenol (2,4,5-TCP) production sites and associated waste disposal sites.

Tier 2: Sites and associated waste disposal sites where 2,4,5-TCP was used as a precursor to make pesticidal products.

Tier 3: Sites and associated waste disposal sites where 2,4,5-TCP and its derivative were formulated into pesticidal products.

Tier 4: Combustion sources.

Tier 5: Sites where 2,4,5-TCP and pesticides derived from 2,4,5,-TCP have been or are being used on a commercial basis.

Tier 6: Sites where improper quality control on manufacturing of certain organic chemicals and pesticides could have resulted in the inadvertent formation of 2378-TCDD.

Tier 7: Control sites where contamination from 2378-TCDD is not suspected.

Preliminary data from the study indicated higher than expected levels of dioxin in paper products and in fish captured in the vicinity of paper mills. Consequently EPA and the pulp and paper industry jointly sponsored additional testing of paper products

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and the mills that produce them. N.Y. Times, Sept. 24, 1987, at 1.

The NDS was scheduled for completion and public release by December 31, 1985. EPA did not succeed in meeting that target date. On August 26, 1986, plaintiff filed a request with the EPA pursuant to FOIA which itemized eleven categories of records relating to the NDS. By letter dated September 22, 1986, plaintiff reiterated the request and indicated her intent to appeal if the documents were not forthcoming. On October 27, 1986, plaintiff filed an appeal with the EPA. On November 30, 1986, plaintiff advised the U.S. Attorney of her intent to file suit. On December 8, 1986, EPA released some records but denied the request for the draft NDS. Plaintiff filed this lawsuit on January 22, 1987.[2/]

The parties filed cross-motions for summary judgment in August 1987. On September 25, 1987, plaintiff filed a motion for a stay of proceedings, for discovery, and for an order barring destruction of evidence. Her request for stay was based on a large volume of documents anonymously sent to her from a source that evidently has access to records of the American Paper Institute, which represents the pulp and paper industry. The documents appear to support the existence of an agreement

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2/ On March 4, 1987, plaintiff filed a second FOIA request which reiterated many of the items made in the August 26 request and added other items. Only the first FOIA request is the subject of this suit.

between EPA and the industry to suppress, modify or delay the results of the joint EPA/industry study or the manner in which they are publicly presented. Plaintiff contends that these documents evince the falsity of statements made by EPA affiants on issues central to this case.

DISCUSSION

A. Scope Of The Request.

Plaintiff's motion to stay is based solely on issues arising out of the joint EPA/industry study. EPA contends that this study is beyond the scope of the August 26 request and therefore beyond the scope of this case. Therefore I must examine the request and construe its proper scope.

The FOIA requires government agencies to disclose documents "upon any request for records which reasonably describes such records." 5 U.S.C. § 552(a)(3). In Dunaway v. Webster, 519 F. Supp. 1059 (N.D. Cal. 1981), the court construed this section as follows:

> Given the policy embodied in the FOIA requiring disclosure of information in government documents unless it falls within the reach of one of the specified exemptions, the agency should err on the side of liberally construing what material falls within the scope of the request .... The agency is obliged to release any information, subject to the specified exemptions, which relates to the subject of the request or which in any sense sheds light on, amplifies, or enlarges upon that material which is found in the same documents.

Id. at 1083. Congress has placed the burden of proof on the agency to sustain its action. 5 U.S.C. § 552(a)(4)(B).

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Plaintiff's requests included the following:

> 2. *Any and all reports which document the extent of environmental contamination in the U.S., studied under Tiers I through VII of the Dioxin Strategy, including but not limited to "The National Dioxin Study" report*, and all reports prepared by the Regions in conjunction with the program offices which summarize available information including analytical results for each site sampled, as well as any and all risk assessments relating to any of the above.
>
> 3. Any and all agency records which discuss or refer to any and all decisions to issue the National Dioxin Study as a series of reports rather than or before issuing a single comprehensive report.
>
> 4. For each site sampled under Tiers I through VII of the Dioxin Strategy *for which no final report has been prepared, the most recent draft report, memoranda, notes, etc. discussing and/or revealing analytical results* and/or the location of each site and/or any and all related risk assessments.

(Emphasis added.) Plaintiff's letter further elaborated:

> My request includes any and all appendices, annexes, or other materials attached or related to the requested records, as well as any other information which you believe may be of interest to me.

EPA contends that the joint EPA/industry report concerning dioxin in paper products and at paper mills was part of plaintiff's second request dated March 4, 1987, but not part of the August 26, 1986 request. Indeed, plaintiff was aware of and specifically requested the joint report in the second request. However, a document need not be specified by name to be reasonably within the scope of a request. A later, more specific request does not somehow excise that material from the reasonable scope of an earlier request. Plaintiff submits a document that tends to show that the joint study was part of the NDS: a draft of a June 1986 "Quality Assurance Project Plan" is subtitled, "National Dioxin Study, USEPA/Paper Industry Cooperative Dioxin Screening Study." In addition, it is in accord with common sense that the joint study, which was precipitated by the findings of the NDS and was undertaken well in advance of final release of the NDS, falls well within plaintiff's first request as a study which "document[s] the extent of environmental contamination in the U.S., studied under Tiers I through VII of the Dioxin Strategy, including but not limited to 'The National Dioxin Study' report." I hold that the joint EPA/industry study is within the scope of the first request and, consequently, of this case because it "relates to, sheds light on, amplifies, or enlarges" the subject of that request. Dunaway v. Webster, 519 F. Supp. at 1083. I need not reach the issue of whether EPA implicitly consented to litigate the issues raised by plaintiff's second request, dated March 4, 1987.

B. Availability Of Discovery.

Plaintiff urges that the materials sent to her from the anonymous source directly contradict the affidavits of at least two EPA affiants, James Cummings and Alexander McBride. James Cummings is the staff member of the EPA Dioxin Management Task Force responsible for the agency's response to FOIA requests. Alexander McBride is chief of the EPA Water Quality Analysis Branch of the Office of Water Regulations and Standards, and was responsible for coordinating EPA's response to the portion of the

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FOIA request dealing with the joint EPA/industry study. Plaintiff points to documents which tend to show that EPA officials have delayed or avoided complying with her requests at the urging of the pulp and paper industry. She contends that the documents deserve credence because events as they actually transpired did so in accordance with the course of action outlined in those documents. Plaintiff contends that the documents show an explicit agreement between EPA and industry officials to forestall regulation of dioxin pollution and to forestall the adverse impact of publicity on the industry by withholding and downplaying information provided by EPA, specifically including a controlled management of EPA's response to this FOIA request. The documents indicate that plaintiff may have a valid concern regarding the credibility of some affidavit statements accompanying EPA's motion for summary judgment.

Plaintiff seeks discovery to pursue her questions regarding the validity of the EPA affidavits. In general, the scope of discovery in an FOIA case is limited to whether complete disclosure has been made by the agency in response to the request for information. Niren v. Immigration and Naturalization Service, 103 F.R.D. 10, 11 (D.Or. 1984) (Frye, J.). On motions for summary judgment, the court may rely on affidavits to determine whether the agency has met its burden of proof. Exxon Corp. v. Federal Trade Comm'n, 466 F. Supp. 1088, 1093 (D. D.C. 1978), aff'd, 663 F.2d 120 (D.C. Cir. 1980). Summary judgment without discovery is appropriate where the plaintiff has made no showing of agency

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bad faith sufficient to impugn the agency affidavit. Goland v. Central Intelligence Agency, 607 F.2d 339, 355 (D.C. Cir. 1978), cert. denied, 445 U.S. 927 (1980). However, where plaintiff or the agency's response raises serious doubts as to the completeness and good faith of the agency's search, discovery is appropriate. Exxon Corp. v. Federal Trade Comm'n, 466 F. Supp. at 1094. I conclude that plaintiff in this case has raised sufficient questions as to the integrity of the EPA affidavits to warrant discovery. This case is stayed to permit discovery.

Plaintiff also seeks an order prohibiting destruction of records by the EPA. However, she presents no evidence that there is a reasonable possibility of such destruction. The motion for a protective order is denied.

CONCLUSION

Plaintiff's motion for discovery is granted. This case is stayed to permit discovery. Plaintiff's motion for a protective order is denied. EPA's motion for summary judgment is denied for the reasons stated above. Plaintiff's motion for summary judgment is denied because it cannot be determined whether any of the requested documents should have been delivered.

DATED this 3 day of November, 1987.

Owen M Panner
Owen M. Panner
United States District Judge

221-6398

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UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF OREGON

CAROL VAN STRUM, Plaintiff, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, LEE THOMAS, ADMINISTRATOR, Defendants,	Case No. 87-6031-E

Washington, D.C.

Friday, May 20, 1988

Deposition of:

MICHAEL C. FARRAR

called for examination by counsel for the Plaintiff, pursuant to notice and agreement of counsel, in the offices of Chadbourne & Park, 1101 Vernont Avenue, N.W., Washington, D.C., when were present on behalf of the respective parties:

(45)

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there, but would not have been intimately involved in the conversations.

I am not certain. That happened on one event when he was there, and I don't know if it was that one or not.

Q At the end of the first paragraph, it states that "assuming all efforts with EPA fail and raw data is made available as a result of the FOIA request," and then they go on and discuss some recommendations.

Are you familiar with the efforts with EPA --

A Yes.

Q -- that this refers to?

A Yes, I am.

Q Could you tell us what they were?

A Yes. Those efforts took place on -- during the period after we learned that the Freedom of Information Act request related to the five mill screening study had been filed. I recall telephone discussions with, as I indicated before, Alec McBride or someone working with him or for him at the time

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where I made several points, the one about this being raw data and not scientifically valid, the question about the confidentiality, our concern that the agreement called for a report at the end that would present all of this information in a coherent, understandable fashion. These are difficult concepts to deal with, and that there was -- I believe those were the points I made to Alec.

After he informed me that the decision had been made to release all the information -- can I refer back to that bracketed sentence on the March 11th minutes, which referred to what happened on March 12th?

Q Certainly. I recall exactly where they were. Page 2-13, 2-14, top of the page.

A Right. If these are accurate, then it was on March 12th that Alec McBride told me that the agency was going to provide whatever it had. The March 13th meeting then, referring to all efforts with EPA failing, I took the matter up the agency ladder, went to the General -- made a call to the General Counsel's office. I don't recall to whom it

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was. It was whoever was assigned the matter, and made the arguments I had made to Alec, and also argued that there was a judicial decision on the books that said even if material -- that I read to say even if material was not exempted by one of the statutory exemptions, if it was part of an ongoing study that was shortly to be released, the agency was under no obligation to release it. They were entitled to complete the study and then put out the information to the requester and the general public in the form of the final study report.

The person I dealt with in EPA General Counsel's office, one, I'm not sure shared my reading of the decision, but went on to say that even if my reading was correct, all that that decision said was the agency was not required to release the information; that the agency had made a policy decision that whether or not it was required to release this information, it was going to release everything they had as quickly as they could to Ms. van Strum.

So whether my -- unless -- unless the

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confidentiality matter included it, and then they enlisted my aid in seeing if we could get the companies to withdraw or back away from any previously made or possibly yet to be made questions of confidentiality. So those were the efforts that might fail, and they failed. The agency was adamant that it was going to release everything it had to Ms. van Strum, and within the ten days that the statute allows.

Q Okay. Did you talk to anyone else at EPA other than Mr. McBride and the OGC attorney?

A I don't recall. We thought about going higher in the agency, and I don't recall if we did or not.

Q Did you put anything in writing --

A No.

Q -- about this issue?

A No.

Q Did you send a letter to Lee Thomas?

A No.

Q And how did you resolve those confidentiality concerns?

A We talked to the companies and made the decision that we should not attempt to stand in the way of the public receiving this information even if it were not valid, scientific material, and the companies agreed.

Q Did you communicate those discussions to EPA?

A Yes, because in at least one case the company had previously filed a claim of confidentiality, and so they had to take -- it wasn't just a matter of not taking further steps. They had to take the affirmative step of withdrawing it, and I communicated the fact that that company was ready to do that, and they'd work out the details and how it had to be done.

Q Was that communication in writing?

A No.

Q Do you recall -- I assume then it was over the telephone?

A Yes.

Q Do you recall whom you spoke with about it?

A No.

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Q Okay. The third point in the first grouping of points discusses or refers to the underlying theme of Ms. van Strum's story. Were you familiar with the underlying theme of Ms. van Strum's story?

A Yes, I believe from newspaper articles.

Q Had you discussed it with anyone at EPA?

A (Pause.) Yes, to the extent that whoever at EPA told me this Information Act request had been filed responded to my questions, you know, who is this from, and at that point if I hadn't learned it independently sooner, I learned about the prior request and proceedings that had taken place on her request to that point.

Q The next grouping of points reflect Mr. Pines' apparent recommendations regarding the industry response to the possible release of this information. Number one is that the industry solicit an agreement from EPA to make a joint release of data to date.

Were you familiar with that recommendation?

A Not insofar as it talked about an agreement

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with EPA. I recall it more as in line with the briefings that had already been conducted at the start of the study that the people could go out and say, "Here we are to report on where that study has gone," not agreement in terms of the formal thing, just in line with that original statement of the underlying study agreement that I mentioned very early this morning, that EPA and industry people would go brief the local governments and press and so forth.

MR. WEIR: Did you want to take a break at 10:30?

THE WITNESS: Yeah.

MR. PARRISH: We can do that now.

(Whereupon, a short recess was taken.)

MR. PARRISH: We can go back on the record here.

BY MR. PARRISH:

Q We're discussing the meeting that took place on Friday, March 13, 1987, with Wayne Pines of Burson Marsteller and various representatives of API. We had discussed how concerns about confidentiality

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had been resolved.

Q Mr. Farrar, was there also a concern at that point that the mills participating in the five mill study be granted some anonymity or had that been changed prior to this?

A There's a two-part answer. They were anonymous -- they were not anonymous to the extent that they had been identified in their communities as the mills at which the study was taking place. Our desire was to keep them anonymous as the study results came in. In other words, the study results would be Mill A, B, C, D and E, because these mills -- and the reason for that was these mills had volunteered to step forward and be the ones tested on behalf of the entire industry, and so it seemed appropriate that findings that there's dioxin in sludge at a mill, that they not receive any unnecessary negative publicity for having stepped forward as the volunteer.

So while people knew who the five were, there was an attempt not to associate until the end particular results with particular named mills. The

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desire of the screening study was to see whether there was dioxin at five, quote, representative mills, not to be considered with what those mills-- who those mills were in particular.

Q Okay. You indicated that you contacted Alec McBride and someone within the office of General Counsel at EPA to discuss -- to urge them to withhold the partial data at that time. One of Mr. Pines' --

A "Partial" was the word in the memo.

Q Right.

A I described it differently though.

Q Exactly.

A Unverified data.

Q One of Mr. Pines' recommendations was that API solicit an agreement from EPA to make a joint release of the data to date, in advance of Ms. van Strum receiving the data.

Did you also press upon EPA that recommendation?

A I personally did not.

Q Are you aware of anyone else at API that did?

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A Yes. I'm sorry. We'll have to define joint release, which in fact is in quotes in this memo. Joint in terms of going out to the community and advising people, here is what's going on, not joint in the sense of the agency's actual response to Ms. van Strom.

They were responsible for copying and boxing up and sending to her all of the documents they had. That was not something they did jointly with us. That was something they did internally.

Q This joint release to the communities would have been made in advance of the response to Ms. van Strom?

A Again, you have to distinguish between the release of the information, the documents themselves to her, and the briefing of -- there was, in fact, in the agreement, you know, that states were going to be kept informed. So you have to distinguish between releasing the documents to her and briefing the press and the state, as it had been agreed upon.

So the one would be joint. The latter would be joint. The documents themselves would be EPA's

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be informed.

I think in some cases they had inspectors or their people come when the sampling was being done. So part of the commitment was to the states, to let them know what was going on in EPA, and we were concerned to honor that. Part of the purpose of the briefings was to make sure the states were informed promptly that here were some preliminary, raw, unverified data that was now going out to the public. It would not be appropriate for the state not to also know about that. So that was one of the purposes behind trying to have the time to set up the briefings, so that the states wouldn't feel that they had been left out of what was going on.

Q Okay. How did you convey the request for extra time to EPA?

A As either the final part of a -- remember when I was trying to have them not release the information. So either as a final part of that conversation or the follow-up conversation with whoever I was dealing with on the release; said, "All right. If you're going to release it, what --if

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you're going to release it, what arrangements can we make to carry out our joint responsibility. You know, we need the extra time to carry out our joint responsibility and get out there and, you know, brief the states and the community."

Q Did you submit anything in writing with that request?

A No.

Q Okay. Let's turn now to page 3-8 materials, March 18, 1987 letter from Carol Raulston to Susan Ford at Burson Marsteller.

Do you recognize this letter?

A I see the letter. I can't -- I don't know what you mean, do I recognize it. It looks like Carol's signature, but --

Q I'm just asking if you recall seeing it before.

A I -- I've seen it, but it's not one that I'm intimately -- you know, I didn't draft it or --

Q Okay. Ms. Raulston indicates that EPA has agreed to the following: to characterize the information as meaningless, used only to establish testing procedures.

Are you familiar with how and when EPA agreed to that?

A I'm familiar with what happened. I wouldn't say that they agreed to characterize it as meaningless. I'd say that we pointed out to them and they had already independently come to the conclusion that the quality assurance officers had determined that this was not quality work by the laboratories.

The laboratories, when they got these samples, I'll use the word "practice." The laboratories had to practice doing these brand new analytical techniques, and they had to practice on the samples, and that's a rough, you know, kind of a layman's paraphrase that the analytical chemist would not use, but they had to run these things to learn how to do the tests.

So the first runs were not legitimate, verified, reproducible results. They were, you know, call them test runs and were meaningless in that sense. So EPA didn't agree to characterize them as meaningless. The quality assurance officers agreed

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they were meaningless.

So I wouldn't say EPA agreed to it. EPA concluded that they were meaningless, but they were going to send them out anyhow, and we objected to sending out meaningless data, and we urged them that if they were going to send it out, send out meaningless data, they ought to say what they truly believed, which was that it was meaningless.

Q When you say you urged them to say that, who were you communicating with at that time?

A It was basically Alec McBride and Gary Amendola.

And what we were urging was if they agreed and their quality assurance officers agreed that the data was meaningless, they ought to say that.

Q The letter indicates that EPA has also agreed to respond with a letter to Ms. van Strum today, meaning March 18th, but to ship the material on April 1st.

Was that agreement explained to you by someone at EPA?

A My recollection is that Carol's use of the

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word "agreed" is not a proper representation of what happened. We were told by EPA that they were going to send her a letter on March 18th, and that because of the difficulty of assembling the number of boxes of documents, they couldn't get the actual documents ready and reproduced, and so I think her use of the word "agreed" doesn't represent what I thought. You know, I was told by EPA this is what they were going to do.

Q And who were you told by?

A Again, Alec or Gary or whoever was responsible for being the project officer for responding to the request.

Q And then finally it says that EPA has agreed to meet with API to discuss public affairs strategy on this and how subsequent requests for information will be handled.

Did that meeting ever occur?

A I do not recall participating in any meeting with EPA public affairs people on this request.

Q Nor, as you said, do you recall meeting

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with them on Carol van Strum's August '86 FOIA request?

A I never have discussed with EP -- met with or discussed with EPA the merits of how -- they told me the history of it, but I never discussed with them the merits of how they would respond to that request.

Q When did they tell you the history of it?

A When the March request came in as part of telling me what they were going to do. They related the fact that this lawsuit was pending, and so forth, not -- not -- I don't know if that's this law -- that a lawsuit was pending. I don't know if that's this lawsuit or some other lawsuit.

Q Okay. Let's turn to page 1-32, which is part of a series of questions and answers starting on 1-31, dated March 20, 1987. Under --

A What page number?

Q Page 1-32.

A Okay.

Q One, dash, thirty-two.

Question number eight, we're discussing the five mill study.

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3/7/87 Don Barnes
[B:foodsupp]

USE OF KNOWN EXPOSURE TO CDDs/CDFs AS A TOOL IN CRITIQUING RISK ASSESSMENTS

Growing Body of Information on Exposure

2,3,7,8-TCDD was first synthesized in the 19th century. The chemical remained essentially a laboratory curiosity for many years. During these early years, it earned a fearsome reputation as a consequence of its noisome habit of eliciting chloracne, a severe -- but not life-threatening -- skin condition. In the early part of the 20th century as synthesis of chemicals became more of a commercial enterprise, cases of chloracne were observed among a limited number of chemical plant workers and people associated with industrial accidents. In retrospect, it seems likely that at least some of these cases of chloracne were the result of exposure to materials containing 2,3,7,8-TCDD as an unintended impurity.

About twenty years ago, scientists began to demonstrate the exquisite toxicity of 2,3,7,8-TCDD in animal systems and to identify its presence in 2,4,5-TCP and related derivatives. The US EPA, in its concern about the potential exposure of the population to 2,3,7,8-TCDD, mounted major regulatory efforts in the 1970s which resulted in the banning of the production and sale of th herbicide 2,4,5-T and its 2,3,7,8-TCDD contaminant in the US.

The mid-1970s first brought to the light the effects of inappropriate disposal of 2,3,7,8-TCDD contaminated wastes. This situation came the fore again in the early 1980s and resulted the Agency's "Dioxin Strategy", which focused on 2,3,7,8-TCDD associated with 2,4,5-TCP and derivatives, but acknowledged the potential for environmental contamination via other routes and by other CDDs and CDFs. A part of this broadened Agency awareness of the CDD/CDF problem involved the emerging problem of emissions of CDDs and CDFs from municipal waste combustors.

During the 1980s, information about CDDs and CDFs in the environment has increased drastically. Monitoring studies reveal that CDDs and CDFs can generally be found throughout the environment, albeit at low levels. detectable levels of these chemicals have been reported in fish tissue, human tissue, urban dust, portions of the food supply, municipal sewage sludge and refuse, and paper -- among others. Confirmed sources CDDs and CDFS into the environment include -- among others -- combustion of municipal waste, electrical equipment fires, exhaust of certain automobiles, production and use of chlorophenolic chemicals, wastes associated with these chemicals, production of certain metals, certain pulp and paper manufacturing processes. Limited evidence suggests that in the days before WWII the sources of CDDs and CDFs were fewer in number and less productive

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than they are today. (This is reflected in analysis of cores from the Great Lakes and extremely limited human tissue data.)

As a part of its "Dioxin Strategy", the Agency is investigating the potential for other sources of CDDs and CDFs, as well as sources of their brominated counterparts, some of which have already been reported by investigators in other countries. It is certain that we will find more -- not fewer -- sources as a result of these efforts.

It would be helpful if we could rank these (and potentially new) sources according to their input of 2,3,7,8-TCDD toxicity equivalents (TEQs) into the environment. This would permit a priority ranking of sources for regulatory consideration. To address this task with sufficient confidence, however, we would require additional information, including data on the transportation and transformation of these materials once they enter the environment.

In summary, in recent years, the number of sources and sinks for CDDs and CDFs in the environment have expanded well beyond our original visions and appear to be related to anthropogenic activity since 1940. Additional sources and sinks are likely to be found as research continues.

The Implications for Human Health and Risk Assessment

As these additional sources of CDDs and CDFs are identified and as the number of chemical species under this rubric increases, the Agency is confronted with additional questions:

a. Are these things toxic and, if so, how toxic?
b. To how much of these materials are people being exposed from these various sources?
c. So what?...what is the significance for public health?

The first question has been addressed by the Agency's adopting the Interim Procedures... document on "toxicity equivalent factors (TEFs)" in January, 1987.

The second question is being addressed by such efforts as the National Dioxin Study, the Report to Congress on MWCs, TSCA Section 4 test rule, and the FIFRA Data Call-in.

The third question is being addressed by the Agency's risk assessment activities, following procedures established in the Risk Assessment Guidelines. Recent efforts in this regard have focused on updating what we know about the CDDs and CDFs and critically examining various approaches to conducting risk assessments on these compounds. Briefly, the Guidelines approach projects a high level risk for many situations associated with 2,3,7,8-TCDD and, via the TEF procedure, to some situations associated with some of the other CDDs and CDFs, as well. These

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projections are somewhat higher than those associated with other approaches; see elsewhere in the Risk Characterization.

Given the broad and growing knowledge of the sources and levels of CDDs and CDFs in the environment, it is appropriate to use the existing exposure information, in some way, to made a check, albeit crude, of the likelihood of the risk assessment projections' actually obtaining in reality. (Such a process was qualitatively performed by the Agent Orange Work Group, which concluded in its 1984 report that enough was then known about the consequences of human exposure to 2,3,7,8-TCDD-containing chemicals to know that the worse case scenarios generated by some in 1980 were not likely to occur.)

Therefore, the following discussion will take the existing exposure information, supplemented by approximations and assumptions, where necessary, and try to deduce what these data might be indicating about the accuracy of the risk we have made...

(We might want to include some information and discussion on the recent data of the antagonixtic effects of PCBs and "biologically inactive" CDDs/CDFs on the toxicity of 2378-CDDs and CDFs... and then again, maybe not.)

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ORIGINAL

TRANSCRIPT OF PROCEEDINGS

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF OREGON

- x
CAROL VAN STRUM, :
Plaintiff, :
v. : Civil Action Number
: 87-6031-PA
UNITED STATES ENVIRONMENTAL :
PROTECTION AGENCY; LEE M. THOMAS, :
Administrator, :
Defendant. :
- x

DEPOSITION OF MICHAEL COOK

Washington, D. C.

Thursday, May 5, 1988

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IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF OREGON

- - - - - - - - - - - - - - - - - - -x

CAROL VAN STRUM,

Plaintiff,

v.

UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY; LEE M.
THOMAS, Administrator,

Defendant.

- - - - - - - - - - - - - - - - - - -x

Civil Action Number

87-6031-PA

DEPOSITION OF MICHAEL COOK

Washington, D. C.

Thursday, May 5, 1988

Deposition of MICHAEL COOK, called for examination pursuant to notice of deposition, at the United States Environmental Protection Agency, 401 M Street, S. W., at 10:30 a.m. before BRENDA M. SMONSKEY, a Notary Public within and for the District of Columbia, when were present on behalf of the respective parties:

RALPH A. BRADLEY, ESQ.
Bradley & Gordon
296 East Fifth Avenue
Suite 309
Eugene, Oregon 97401
On behalf of Plaintiff.

-- continued --

(67)

APPEARANCES (Continued):

JUDITH D. KOBBERVIG, ESQ.
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JANE S. ROEMER, ESQ.
United States Environmental
Protection Agency
Office of General Counsel
401 M Street, N.W.
Washington, D. C. 20460
On behalf of Defendant.

ALSO PRESENT:

PAUL MERRELL

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we have referred to.

Q During any of those meetings, were you informed that part of the discussion included the response of EPA to Carol Van Strum's FOIA?

A I don't recall being so informed.

Q Do you recall being informed of any meeting between EPA and API where confidentiality claims of the industry were discussed?

A I don't recall that that came up.

Q I don't know if I have asked you this, but what do you remember about the content of any meetings between EPA and API that you haven't already described?

A Nothing more.

Q What do you know about development of the A.D. Little risk assessment?

A Alec McBride told me that he had asked that the risk assessment be prepared by the contractor after finding the dioxin in the pulp associated with the paper mills in the five-mill study, that it was my idealized assessment that made a series of worst-case assumptions and that he had commissioned it basically to try to get some sense for what the worst-case situation might look like.

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Q I want you to assume for a moment that the A.D. Little risk assessment is based upon 7.5 parts per trillion TCDD. My question is that -- in the pulp. My question is, was EPA in possession of data at the time the A.D. Little risk assessment was commissioned that indicated the parts per trillion of TCDD in pulp was actually greater than 7.5?

A In my memory, it was that in a few of the results, but I don't remember the details.

Q Were you in possession of data from the Swedish government regarding what they had found about parts per trillion of dioxin in pulp?

A I was not. I don't recall whether someone briefed me on that.

Q Do you know whether the A.D. Little risk assessment used the 7.5 parts per trillion of TCDD for its development of the risk assessment in the worst-case analysis?

A Let me restate the question and make sure I understand it. You are asking if the A.D. Little report used 7.5 parts per trillion in the worst-case analysis?

Q In the risk assessment, yes.

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A I don't recall.

Q Do you recall the documents that existed prior to the commissioning of the A.D. Little risk assessment that indicated the actual parts per trillion found in pulp were greater than the parts per trillion that A.D. Little was going to use?

A The documents involved would have been the results of the tests that were run on the pulp in the five-mill study.

Q I will show you -- give us two minutes.

(Recess.)

BY MR. BRADLEY:

Q I will show you a March 18, 1987 letter from Carol Raulston to Susan Ford that we have discussed in all the other depositions. It is at III-8 of Plaintiff's motion for stay of discovery. Have you seen that document before?

A No.

Q What documents did you review before coming to your deposition today?

A The Freedom of Information requests that have been sent by Ms. Van Strum and the response, the briefing materials that were prepared for the July 31 meeting with the

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21-1

MONITORING AND DATA SUPPORT DIVISION

CONTRACT WORK PLAN AMENDMENT
Acct 6BV628B003
DCN C62V02 $35,000

EPA CONTRACT # 68-01-6951
CONTRACTOR Arthur D. Little
WORK ORDER # 18
AMENDMENT 1

THE CONTRACTOR SHALL FURNISH FACILITIES, MATERIALS, AND THE NECESSARY PERSONNEL FOR PERFORMANCE OF THE WORK SPECIFIED BY THIS TASK REQUEST.

TITLE OF WORK ORDER: Continued Support for National Dioxin Study

LOE (MANHOURS) increased by 700 to 950

TASK PERIOD OF PERFORMANCE

COMPLETION DATE July 19, 1987

CONTRACTING OFFICER

Albert Ahlquist PHONE (513) 684-7735
Environmental Protection Agency
Contract Management Division
26 West St. Clair Street
Cincinnati, OH 45268

Contracting Officer Approval ____________ DATE ____________

PROJECT OFFICER

Stephen Kroner PHONE (202) 382-7051
Environmental Protection Agency
401 M Street, S.W. (WH-553)
Washington, D.C. 20460

Signature of Issue Stephen Kroner DATE 3/23/87

WORK ORDER MANAGER

Stephen Kroner PHONE (202) 382-7051
Environmental Protection Agency
401 M Street, S.W. (WH-553)
Washington, D.C. 20460

REQUESTOR

Alec McBride PHONE (202) 382-7046
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Washington, D.C. 20460

Exhibits page 1

WORK ASSIGNMENT 18
AMENDMENT 1

This amendment is to expand the statement of work to include an evaluation and quantification of the exposure situations that may occur through the use and disposal of dioxin contaminated products from bleached kraft pulp and paper mills. An additional 700 hours of effort are expected to cover this work.

There are four major steps as part of this amendment:

1. exposure assessment,
2. hazard identification,
3. risk characterization, and,
4. prepare draft and final reports.

The exposure assessment is the most difficult aspect of this project, as many of these issues have not been considered before. The contractor must:

1. identify consumer products made from the bleached kraft process;
2. characterize use situations, including any high-risk populations (e.g., school children having oral contact with products);
3. identify and characterize exposure pathways;
4. evaluate dioxin concentrations in consumer products being evaluated; if no data exist, assume a product level of 10 ppt;
5. estimate exposure associated with products/use situations; and
6. estimate exposure levels associated with disposal of contaminated products via incineration.

Exhibits, page 2

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IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF OREGON

CAROL VAN STRUM, Plaintiff, v. U.S. ENVIRONMENTAL PROTECTION AGENCY; Lee M. Thomas, Administrator, Defendant.	)	CIVIL No. 87-6031-E AFFIDAVIT OF CAROL VAN STRUM Fed.R.Civ.P. 56(f)

I, CAROL VAN STRUM, depose and state:

I am plaintiff in the above-captioned matter and make this statement in opposition to EPA's motion for summary judgment and in support of my own motion to stay these proceedings and to take depositions and discovery.

Pursuant to Federal Rule of Civil Procedure 56(f), I state that I am unable to present by affidavit facts essential to justify my opposition to EPA's motion without depositions and

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discovery, for the reasons discussed in my motion to stay proceedings and as amplified below. I therefore ask the Court for a continuance in order to take depositions and discovery to prepare my response.

I have been asked to prepare this affidavit based upon inferences that can possibly be drawn from records and events. I wish to make it clear that I recognize it would be possible to draw other inferences from the same records and events. I request the Court's permission to take discovery and depositions to resolve such issues before being required to answer EPA's motion for summary judgment.

An initial word of explanation is in order because much of what is discussed below transpired long after my initial FOIA request and lawsuit was filed. As more fully discussed below, the record of this case indicates that EPA has never conducted a search for the records that were responsive to my first request that is the subject of this litigation. My understanding is that under the present circumstances, my request continues to encompass records described therein until the date that EPA does conduct such a search and my discussion is therefore relevant to the issues before the Court. McGehee v. Central Intelligence Agency, 697 F.2d 1095 (D.C. Cir. 1983). Furthermore, the later events cast substantial doubts on the accuracy and good faith of EPA's affidavits submitted in this case, in any event.

I have not been able, in the short time since receiving the leaked industry documents, to prepare an exhaustive study of those documents, and the following is offered as mere examples.

I. EPA HAS NOT SEARCHED FOR DIOXIN MEDIA STRATEGY RECORDS

My original August 26, 1986 FOIA request sought records relating to dioxin analyses and related information generated as part of EPA's National Dioxin Study, as well as all records relating to EPA national media strategy on dioxin.

As discussed below, the leaked industry documents indicate that numerous EPA records of the Agency's dioxin media strategy have been arbitrarily withheld. This strategy was designed to conceal and downplay information on dioxin pollution from pulp and paper mills and in finished consumer products. The leaked documents also indicate that my FOIA request and this case became the principal target of that media campaign and that EPA's wilfully false statements have tainted the record of this lawsuit.

One can infer from the leaked industry documents and other records provided that EPA in fact did develop a major national media strategy for dioxin and that EPA's affiant Alexander McBride was the coordinator. One can also infer the participation in this strategy of EPA's affiant James Cummings, as well as persons involved in my FOIA administrative proceedings. I therefore request discovery and depositions.

Such media strategy records clearly exist. In fact, EPA and the American Paper Institute executed a formal agreement requiring the development and execution of such a strategy. The leaked industry documents contain several hundred pages documenting the complexity of Industry's role in executing that strategy, and also refer repeatedly to meetings and communications with EPA officials on the very subject of dioxin media strategy. From these documents and subsequent related events, one can infer the existence of a correspondingly elaborate effort on EPA's part that would have to be documented in order even to hope for success.

Category 9 of my initial FOIA request sought "[a]ny and all records of agency national media strategy on dioxin, including but not limited to any records that are the national level functional equivalent of the regional [Community Relations Plans" previously referred to in the request. Complaint Exhibits pg. 56. This category of my request, like all other categories of my initial FOIA request, are never discussed or referred to in any agency affidavit filed with this Court.

The Agency provided no records in this category and in the administrative proceedings denied that any such records existed. Complaint Exhibits, pp. 143-45. The agency's affidavits, however, describe no effort to locate such records, but instead repeatedly make conclusory statements that all records requested have been provided.

The EPA/Paper Industry Cooperative Screening Study agreement, dated June 20, 1986, under the heading of "Joint USEPA and Industry Responsibilities," required jointly-conducted "public, local government, and media relations." Plaintiff Exhibit A, pg.

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I-26. Affiant Alexander C. McBride signed this agreement. Id. at I-28. He was designated as project director for USEPA participation, bearing responsibility for "overall agency coordination" of the entire project, including "contact with the paper industry, USEPA, state agencies, the public, and the media, as necessary."[1] Mr. McBride's signature committed the Agency to conduct "public, local government, and media relations as necessary," with him coordinating other specified EPA personnel.[2] Identically-described duties were prescribed for API. Id.

At a September 22, 1986 meeting between EPA officials and pulp and paper industry executives, Administrator Lee M. Thomas advised EPA and industry to "continue [their] cooperative effort" on public relations.[3]

All of these events occurred before EPA answered my FOIA request.

The major goals of this joint EPA/Industry dioxin media strategy were "to forestall major regulatory and public relations difficulties [for the paper industry] by, among other things, agreeing to cooperate in a joint study with EPA to determine the

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[1] Appendices, pg. 3, USEPA June 11, 1986 Draft Quality Assurance Project Plan for National Dioxin Study USEPA/Paper Industry Cooperative Dioxin Screening Study. This is the latest draft of this document provided to me, but is consistent with all earlier drafts in the quoted respect.

[2] Exhibit A, pg. I-26.

[3] Plaintiff Exhibit A, Pg. V-194. See also list of industry meeting participants at id., pg. V-196.

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source of the dioxin if, in fact, it proved to be present."[4] "The industry's communications experts, meanwhile, came together to prepare responses to inquiries while the tests were in progress."[5]

Even before the joint EPA-Industry agreement was signed, industry was concerned that EPA might release damning dioxin information in response to a FOIA request.[6] This concern resulted in a paragraph being inserted in the joint EPA-Industry agreement by which EPA agreed, if requested, to treat information from the Joint Study as confidential trade secret information under EPA's FOIA regulations.[7]

After my August 26, 1986 FOIA request was filed, EPA and industry became even more concerned about disclosure of the data I had requested. This apparently caused some concern for public appearances by EPA's Mr. McBride. In a January 13, 1987 memorandum shortly before this lawsuit was filed, Mr. McBride told an industry official:

> We currently have no plans to release data

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[4] Exhibit A, pg. III-11. See also id., pg. V-194 (meeting notes in which industry official discusses with Administrator Lee Thomas problems with state regulatory agencies and the need to avoid such problems by federalizing the regulatory effort). See also id., pg. I-1 (industry report indicating that the cooperative effort with EPA had forestalled regulatory action).

[5] Id. The industry documents indicate that the public relations materials to be used in the coordinated campaign were in fact utilized. See id. ("This material has served us well so far").

[6] Exhibit A, pp. V-99 through V-101.

[7] Exhibit 1, pg. V-171.

> prior to publication of a final report; however, we all recognized the possibility that the release of some data may be necessary in certain situations. We believe it is imperative that there be no possible appearance of a situation wherein somebody could be withholding data which indicates a potential threat to human health. We do expect that industry representatives would be involved if the circumstances are such that a release is necessary.[8]

The latter-quoted document was, upon information and belief, leaked to a Greenpeace office soon after this lawsuit was filed, and on February 11, 1987, it and accompanying memoranda were exhibited to a memorandum I filed in this lawsuit.[9]

My FOIA request quickly became the focal point for the entire dioxin media strategy.[10] In a late February, 1987 meeting held with unidentified EPA officials, "Mr. Wigger . . . said the EPA officials thus far seemed disinclined to release partial data."[11] Indeed, rather than releasing the requested data, EPA moved in this Court on February 23, 1987 for a "ruling on the scope of the plaintiff's request," on the theory that "such a broad request by

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8. Exhibit A, pp. V-158 through V-159 (emphases added).

9. C.R. # 11.

10. See Exhibit A, pg. III-19 ("An Oregon environmental activist already has filed a request for the release of the National Study, and it is reasonable to assume she may take similar action with respect to the joint study").

11. Exhibit A, pp. II-13 and II-14. ("The day following the meeting, EPA said it was going to comply with the FOIA request and provide the data generated so far.") see also id. ("Mr. Hayes called on Carol Raulston who explained the status of a Freedom of Information Act request concerning EPA's National Dioxin Study").

the plaintiff could consume considerable time and resources by the agency in search for every possible responsive document."[12]

It is thus clear that up to the time of that filing, EPA had never conducted a search for my request, which -- it told this Court -- encompassed so many records that compliance would be unduly burdensome. The Agency's administrative position, however, was that the agency had already provided me with all records requested other than the withheld draft National Dioxin Study Report.[13] The Agency in its delaying motion to determine the scope of my request also made conclusory claims that the Complaint sought records that had not been requested in my original FOIA request, and that I had not properly exhausted administrative remedies. Furthermore, EPA filed this conclusory delaying motion, even though I had, on February 11, filed a lengthy memorandum detailing the heavy burden the agency would have to sustain to be entitled to any further time for administrative processing of my FOIA request,[14] a burden the agency made no effort to shoulder.

It bears notice at this point that numerous documents provided me by EPA indicate that the Joint EPA-Pulp & Paper Industry Dioxin Study was part of the National Dioxin Study.[15]

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12. C.R. # 13 at pg. 2.

13. Complaint Exhibits at pg. 8.

14. D.R. # 11.

15. See e.g., Appendices, pg. 1 (Quality Assurance Project

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Industry's concern that EPA might release information to me from the Joint Study was therefore understandable, because my original FOIA request clearly encompassed such information.[16/]

On March 2, 1987, before EPA received my second FOIA request, Industry prepared a detailed "Dioxin Public Affairs Plan" to prepare for possible release of information on the Joint Study,[17/] noting that "lawsuits brought under the Freedom of Information Act may require EPA to publicly disclose certain data from the joint study before it is completed."[18] Key elements of this plan required the participation of EPA officials. For example, the

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Plan).

16. See Appendices, pp. 14-17. Such information would have fallen under several categories of my request. For example, see category 2:

> Any and all reports which document the extent of environmental contamination in the U.S., studied under Tiers I through VII of the Dioxin Strategy, including but not limited to "The National Dioxin Study" report, and all reports prepared by the Regions in conjunction with the program offices which summarize available information including analytical results for each site sampled, as well as any and all risk assessments relating to any of the above.

See also category 4 id. ("For each site sampled under Tiers I through VII of the Dioxin Strategy for which no final report has been prepared, the most recent draft report, memoranda, notes, etc., discussing and/or revealing analytical results and/or the location of each site and/or any and all related risk assessments").

17. Exhibit A, pp. III-15 through III-39.

18. Id., pg. III-17.

strategy called for:

> Regulatory/Legislative Strategy
>
> . . . Work through EPA as lead federal agency
>
> - EPA makes initial contacts with FDA/CPSC/OSHA
> - Message: "Avoid undue concern/alarm on the part of the public as well as state and local jurisdictions."
>
> Cooperate on joint activities
>
> - Provide information they need and/or ask for
> - Share industry data/studies *if*:
>
>   (a) public health concern is raised
>
>   (b) serves objectives of getting appropriate regulations

(Emphasis in original.)[19]

It also bears notice that all of this -- including the EPA decision to release the information from the Joint Study[20] --

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[19] *Id.*, pg. III-30. *See also id.*, pg. III-35:

> SHORT TERM OBJECTIVES - SPECIFICS
>
> WITH EPA
>
> (1) Get EPA to discuss issue with media in balanced/non-hysterical manner
>
> (2) Get EPA to "rethink" dioxin risk assessment
>
> (3) Have EPA *not seek* publicity
>
> (4) Get EPA to issue statement "No harm to environment or public health"

[20] *See* note 11 *supra*.

occurred before EPA received my second FOIA request on March 4, 1987.[21] On that date, I caused my second FOIA request to be hand-delivered to the EPA FOIA Office in Washington, D.C. It attached a copy of the Complaint in this case, requesting the records specifically described therein and more particularly specifying records relating to the Joint Industry Study, to communications between EPA and Industry, and to related records.[22] I unambiguously stated in that request that I regarded it as wholly redundant to my previous request and that I was only making the second request to moot the "scope of request" issue and to obtain discovery on that issue.[23]

This request led to "extensive discussions with all parties involved in the joint study," and a decision to release partial data to me, according to the leaked industry documents.[24] On March 18, 1987, Industry's Ms. Raulston wrote[25] that "EPA has agreed to the following:

> - to characterize the information as meaningless, used only to establish testing procedures.
>
> - to respond with a letter to Ms. Van Strum today, but to ship the material on April 1.

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21. C.R. # 24a at pg. 23 (EPA response to second FOIA).

22. C.R. # 24a, pp. 31-47.

23. Id., pp. 31-32 (to moot issues), 37 (discovery).

24. Exhibit A, pg. III-49.

25. Id., pg. III-8.

> \- to meet with us to discuss the public affairs strategy on this and how subsequent requests for information will be handled.

EPA did in fact respond to my second FOIA on March 18 with a letter characterizing the pulp mill data provided as meaningless because it was so preliminary and used "test methods that were found to be inadequate and will not be used."[26/] Another copy of the same letter was included with records that were shipped to me that same day, with a handwritten margin note informing me that the "meaningless" Joint Industry data would be shipped by April 1, 1987, as indicated by Ms. Raulston (quoted in previous paragraph). From my experience, the margin note appears to be in the handwriting of Mr. James Cummings, another EPA affiant.

JOINT MEDIA STRATEGY IS IMPLEMENTED

"[T]he public affairs strategy on this and how subsequent requests for information will be handled," as characterized by Ms. Raulston above, did in fact occur. After first noting that "extensive discussions" had occurred, the Industry documents report:

> In conjunction with the release of the information, Ms. Raulston reported that a series of low-key briefing sessions were held with selected state and local officials and press in the five states where the joint study was underway. The communications objectives of the visits, in addition to bringing appropriate

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26. C.R. # 24a at 74 (attached to affidavit of Alexander McBride).

> officials up-to-date, were to ensure that any press accounts of the study were accurate and local, as opposed to national, in scope. She said those objectives had been successfully achieved.[27]

Before I received the shipment of Joint Study data, similar STORIES ran in several western newspapers. A representative story from the Eugene Register-Guard is attached to this affidavit.[28] The story announced a new 100-plus-mill Joint Study. It ends by stating:

> Alec McBride, chief of the EPA's water quality analysis branch, said Wednesday his agency is releasing a one-foot-tall stack of documents on its paper mill study to Van Strum, who was not available for comment Thursday. However, McBride said the documents consist only of preliminary laboratory reports related to establishing a reliable testing method.

It is not surprising that the story was distributed so widely, because on March 13, five days before EPA responded to my second FOIA request, agreeing to delay shipping the Joint Study data and agreed to characterize the data as "meaningless," Industry retained a public relations firm to handle publicity on my FOIA request.[29] The public relations firm's suggested strategy is consistent with the above-mentioned events that occurred between March 18 and April 3:

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27. Exhibit A at pg. III-49.

28. Appendices, pg. 22. I was informed by telephonic communications that similar stories had run in newspapers as far away as the San Francisco Chronicle.

29. Exhibit A, pg. III-3 (retainer agreement).

> (1) The industry solicit an agreement from EPA to make a "joint release of data to date" in the five-mill communities (this would include briefings with local press and selected community/state officials). Such a release would be made in advance of Ms. Van Strum receiving the data.
>
> (2) The industry ask that EPA request an additional 10 days to respond to the FOIA request so that the mechanics of the joint release can be worked out.
>
> (3) The industry and EPA agree upon the content of the "joint release."
>
> (4) Designated spokespersons from the association and the five mills agree upon a message.
>
> (5) The industry not avail itself of all the legal remedies to delay release of the five-mill data. It was [the public relations specialist's] professional judgment that delays on legal grounds would merely reinforce the "cover up" and "something to hide" challenges.30/

WITHHELD RISK ASSESSMENT RECORDS ARE PART OF MEDIA STRATEGY

As stated above, time does not permit an exhaustive treatment of the industry documents. The narrative provided by the unknown person who sent me the industry documents describes and references the expansion of the public relations effort through early August, 1987 and I can give that information no better treatment in the short time available. It is noteworthy, however, that on July 31 of this year Industry again met with Administrator Lee Thomas, who "indicated a willingness to cooperate with the

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30. Exhibit A at pg. III-52.

industry to ensure that the public not be unduly alarmed about this issue,"[31] a sign that communications between EPA and Industry were not impaired by my second FOIA request seeking all communications between EPA and Industry. Furthermore, the leaked industry documents repeatedly refer to industry review of risk assessment, conclusions, and interpretations in the draft National Dioxin Study report, information that EPA has withheld from me for more than a year now.

For example, the very portions of the National Dioxin Study draft reports that EPA has persistently withheld from me as exempt from disclosure were clearly made available to Industry to examine and attempt to influence as part of the joint media strategy campaign with EPA.[32]

My preliminary report for Greenpeace on this matter, based upon the records EPA had already provided, was published in late August. My report also cited numerous EPA records indicating its knowledge that no "no-effect level" for TCDD had ever been demonstrated,[33] and the report was widely distributed throughout North America by Greenpeace, gaining press attention for this

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31. Exhibit A at pg. I-3.

32. See e.g., Exhibit A, pg, I-8 ("the study will report . . ."); pg. I-10 ("the study will point to several low-level sources . . ."); pg. I-11 ("These contacts [to influence risk-management decisions] should be made before final release of the National Dioxin Study").

33. See report in Exhibit A, at pp. V-13 through V-71.

issue.[34]

On September 19, 1987, I received the leaked industry documents. On September 23, 1987, I was told by a Greenpeace official, Joyce McLean, that a story based upon the leaked documents had run in the Toronto Globe & Mail.[35] I spoke by telephone with Mr. Phillip Shabecoff of the New York Times, who informed me that he had also received the leaked industry documents and that he was preparing to call EPA officials about those records. The next day, I was told by Ms. Eileen Price of the Greenpeace Washington, D.C. office that she had attempted to attend a hurriedly-called press conference at EPA that released the National Dioxin Study Report. She told me that guards had barred her entrance to the press conference, but that she had been allowed to view the press conference from another room via television. She also told me that after the press conference she had been able to obtain a copy of the National Dioxin Study Report, along with copies of the press conference materials. I requested that she send me copies of those materials, which are submitted today as Plaintiff Exhibits B and C.

The press conference materials indicate that much of the press conference was devoted to revelations of an Industry study indicating worrisome levels of TCDD in consumer goods manufactured from pulp and paper. EPA officials are quoted in many published stories and in the press conference materials making precisely the wild claims of public safety recommended by the Industry public relations specialist, as discussed above.[36] These claims of safety are totally inconsistent with EPA documents cited in my report, many of which are included in the record of this case,[37] which establish EPA's awareness that a safe level of TCDD has never been established.[38] These claims of safety, if they have any scientific integrity whatsoever, must of necessity be supported by detailed risk assessments, records clearly within the scope of my original request, a request on which EPA has never conducted a search for responsive records.

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[34] See newsclippings in Appendices, pp. 23-27 from such publications as The Christian Science Monitor, The Wall Street Journal, The Vancouver Sun, etc.

[35] In Appendices, pp. 34-35 (also includes story that ran in the same paper the following day.

I have scoured EPA's affidavits and the administrative record from stem to stern and have found no indication whatsoever that anyone ever searched any further than James Cummings' desk for any records requested in my *first* FOIA request. It is *this* request that is before this Court.[39] The only record of a search I can

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36. *See* *e.g.*, newspaper reports in Appendices, pp. 28-35; press conference materials in Exhibit B.

37. *See* exhibits to Complaint; to Plaintiff's memorandum on "good cause" for expedited judicial review (C.R. # 4); motion for expedited review of first cause of action (C.R. #

38. *See also* Exhibit C at pg. V-4 (discussing EPA's proposed water quality criteria for TCDD indicating unacceptable human health effects from water contaminated in the low parts-per-quintillion range).

39. *See* C.R. # 23, where this Court denied my motion to amend the

find was for my second request, which the Agency claims was separate and distinct, and did not include records I sought in my first request. Even that search was apparently far less than diligent, or Mr. Cummings was being disingenuous with the Court in claiming that he provided all Background Technical Reports for the National Dioxin Study. The bibliography for the final National Dioxin Study Report indicates the existence of several such reports, in existence even when I made my second request, that he has claimed under penalty of perjury do not exist.[40]

From the above stated facts, I infer that EPA has improperly withheld many records. Futhermore, one can reasonably infer that EPA's affiants are being considerably less than candid with this Court in their claims of good faith in the processing of my request, and in their claims that they have diligently searched for and provided all requested records found, particularly on the categories relating to public and community relations, to raw data, and to risk assessments.

For example, at a May 5, 1987 meeting with Industry, Mr. McBride was acutely aware both of a cost-benefit analysis that must of necessity include a risk assessment and of an EPA-sponsored risk assessment of dioxin levels in finished paper

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Complaint to allege FOIA violations based upon EPA's mishandling of my second request.

40. *See* Exhibit C, last 8 pages.

products.[41]

Alec McBride nonetheless told this Court under penalty of perjury on July 31, 1987 that, in response to my second FOIA request, the Agency had provided all of the following types of records:

> all communications between or among EPA, the states and the paper industry; all documents describing the sampling and analytical protocols and plans for the study (which included the requested information on sampling locations and coding); all available data from the study, including as requested, raw data which had not been validated and data reports; all additional data from other sources on levels of dioxin in paper mill sludges, including laboratory reports, data summaries and miscellaneous reports; and any documents reflecting alternative courses of action on conducting further studies of dioxin produced in the pulp and paper milling process[;] [42]

Mr. McBride also told the Court under penalty of perjury on the same date that the following types of records did not exist:

> any records reflecting discussions about when dioxin is generated in the pulp and paper milling process; any records of alternative technologies under consideration to reduce or eliminate dioxins from pulp and paper mill processes, or records on the economic costs of switching to such technologies; and any records of Agency decisions to conduct further studies of dioxins produced in pulp and paper mill processes.[43]

From the foregoing discussion, a reasonable person could

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41. *See* Exhibit A at pg. II-6 (cost-benefit analysis and A.D. Little risk assessment).

42. C.R. # 24a at 70.

43. *Id*. at 71.

infer that Mr. McBride -- as well as EPA's other affiants -- were not being truthful and offered their affidavits in bad faith. The industry documents suggest a massive effort to deceive me, the public, and this Court both on the hazards of dioxin pollution and on the existence of relevant records. Certainly at the very least, the Industry documents demonstrate that EPA's affiants do not understand the solemnity of making statements under penalty of perjury.

I am therefore unable to answer EPA's motion for summary judgment without taking discovery and depositions. At the very least, I request a stay in which to more carefully examine the industry documents before answering summary judgment.

I DECLARE under penalty of perjury that the foregoing is true and correct.

Executed this ~~eleventh~~ ninth day of October, 1987.

CAROL VAN STRUM

Mr. Nowak. We will now turn to our next panel, which is the local environmental organizations.

If they'll come forward as I call their name. Mr. Jerry Wilde, president of the Dead Pigeon River Council; Mr. Gordon Ball, who is counsel, Dead Pigeon River Council; Mr. Skip Taggart of the Hartford Environmental League Project; and Mr. Dick Mullinix, Pigeon River Action Group.

Mr. Wilde, if you would like to start your testimony.

TESTIMONY OF JERRY WILDE, PRESIDENT, DEAD PIGEON RIVER COUNCIL; GORDON BALL, COUNSEL, DEAD PIGEON RIVER COUNCIL; HARRY AUTHUR TAGGART, JR., PRESIDENT, HARTFORD ENVIRONMENTAL LEAGUE PROJECT; AND DICK MULLINIX, CHAIRMAN, PIGEON RIVER ACTION GROUP

Mr. Wilde. Mr. Chairman, were you going to play the tape at this time? That's what I was told.

Mr. Nowak. At any time you so desire during your testimony that you want to play the tape, if it's convenient.

Mr. Wilde. If you don't care, let's play the tape now.

Mr. Nowak. This is a tape which was submitted on this subject. Who is the tape made by, Mr. Wilde?

Mr. Wilde. Mr. Chairman, the tape was prepared by the Pigeon River group. It was filmed by Ray Struther and Associates out of Washington, DC. It was filmed in Cocke County and North Carolina about 3 weeks ago.

Mr. Nowak. All right. Thank you.

It's 6 minutes, I understand?

Mr. Wilde. It's 6 minutes and 30 seconds.

Mr. Nowak. Start your testimony. We'll break if they get that picture cleared up.

Mr. Wilde. Mr. Chairman, my name is Jerry Wilde. I'm the president of the Dead Pigeon River Council.

Mr. Chairman, the Dead Pigeon River Council was formed midnight, December 31, 1986, on a bridge over the Pigeon River. That was just a preface now for my remarks.

Mr. Chairman, the Pigeon River has been sold to the highest bidder.

When the paper mill was first being built on the banks of the Pigeon River, the people who lived along the banks of the river were not told of the detrimental effect it would have on their lives and health.

Can you imagine the shock these people received when the crystal-clear river was turned through the mill and then came out black. The whole river turned black. The truth had been kept hidden from these people.

Periodically, over the last 80 years, Champion International Corporation has announced with great fanfare each of a long line of promises to clean up the river. On each occasion, it was predicted that next year, or in a couple of years at most, the river would be clean, clear, and safe to use for all forms of recreation, including swimming and fishing.

We have newspaper clippings, Mr. Chairman, that go back as far as 1912 showing the promises of Champion, that they were going to clean the river up. Were each of these in a long line of lies deliberate? I hope not. But the truth was kept hidden.

When the Great Smokey Mountain National Park was being purchased, Champion protested that if it had to sell some of its timberland for the park, the mill would be forced to close with the loss of great number of jobs. Now, more than 50 years later, with a workforce in excess of 2,000 people, we again hear the same dire threat of mass loss of jobs if Champion is forced to clean up their pollution of this once beautiful river. The truth is being kept hidden.

This past December, 1987, during a meeting with citizens of Newport in Cocke County, Tennessee, in response to a question about any health hazards possibly present in the mill's effluent, the plant manager and company vice-president, Oliver Blackwell, replied that there was nothing in the water which would be dangerous to humans or livestock using the river.

About that time, members of the Dead Pigeon River Council received from Greenpeace information that the EPA and the paper industry had known for at least two years that paper mills produced dioxin. Again, the truth had been kept hidden.

Over 80 years ago, the Pigeon River was sold to the highest bidder. Are people's health and welfare now being sold to the highest bidder? I call on you, members of Congress and of this committee, to ensure that the EPA does, in fact, protect our environment for us and our children and to see to it that the truth can no longer be hidden from the people.

Thank you.

Mr. **Nowak**. Thank you for your statement.

Is the film ready?

Mr. **Wilde**. I think so, Mr. Chairman.

Mr. **Nowak**. OK. Let's run the film. It is 6½ minutes.

[Video shown.]

Mr. **Nowak**. We will continue now. Mr. Gordon Ball, if you want to give us your statement.

Mr. **Ball**. Thank you, Mr. Chairman.

Mr. Chairman, members of the committee, ladies, and gentlemen, I appear here today in really two capacities. One, as counsel for the Pigeon River group. I was retained back in March of this year, 1988, along with Mr. Gary Brewer, to represent the Pigeon River Council.

The other capacity that I appear in is really sort of a personal capacity. I grew up in that small community. My grandmother still lives there, and she has cancer. My father lived there for 20 years, and he has had cancer.

After listening today at long length—and I know the members of our group appreciate your being so kind to sit here all day and listen to us—there are some things that I have heard today that I would like to address.

One of the things that I have heard—and I don't mean to mischaracterize. I hope I don't. If I do, I do not do it intentionally to any testimony. But the one thing that I heard this morning was that EPA really did not know about dioxin completely until 1987.

The documents that have been discussed that were leaked from the American Paper Institute to Judge Panner's court in Oregon do not bear that out. In reading from one document—and I will refer to it specifically. It is a letter to Mr. Alec McBride from the American Paper Institute, Mr. Michael C. Ferar, June 23, 1986. Quoting from part of it, it says, "Available EPA data indicates that within the paper industry bleached kraft mills have the highest level of dioxin in wastewater sludge."

In 1985, the EPA came into Tennessee to test for dioxin. They came to eastern Tennessee and Cocke County and western North Carolina specifically. You have seen the tape of the Pigeon River. You know that it runs from western North Carolina directly into Cocke County, Tennessee.

The EPA physically walked across this river. This river holds one of the largest paper mills in the country and runs into one of the smallest rivers in the country. They physically walked across that river in 1985 and did not test it. They tested a crystal clear creek that runs into the Pigeon River below the Canton mill, a creek called Cataloochi Creek.

Now after we came into this case, for lack of better words, I talked to the State of Tennessee officials about that. I said, why didn't you ask them, why would you test Cataloochi Creek? There's no paper mill above Cataloochi Creek. They said, well, we don't know why they did that. We wondered about that ourselves.

At that same time, in 1985, the EPA notified the States of Maine, Wisconsin, and Minnesota concerning dioxin in their rivers. As a result of that, two of the rivers were either closed or posted. So it is obvious that the EPA knew about dioxin from 1980 on, as you have heard.

Another matter that I would like to touch on is this. Congressman Sundquist talked this morning about the epidemiology study. Of course, epidemiology studies are the studies of the relationship of the incidence of cancer.

About a month ago, the State of Tennessee sent us a person to test the incidence of cancer in Hartford, TN. I met with him in my office. His name was Dr. Taylor. I said, "Dr. Taylor, what are your credentials? Are you a clinical epidemiologist?" He said, "No, I am a veterinarian." He said, "I have had courses in epidemiology." I asked him, "How large is your department?" He said, "We have four people." I said, "Do you have a study prepared?" He said, "No, we are going to go door to door." And they did, for two days.

Their whole epidemiology study consists of going back and looking on death certificates to see how many people have died in Hartford, TN, in the last 20 years. That is their epidemiology study. I submit to you that most States are as ill-equipped to do those kind of things as the State of Tennessee.

The other matter that I heard talked about here today is that the EPA came into Hartford, TN, and tested the wells. They said, well, there is no problem. There is no dioxin in the water columns. But we all know that it would be rare indeed to have dioxin in the water columns.

Last week I sat in the office of Mr. Tidwill, who is an old friend of mine and is the head of Region IV of the EPA. I asked him, I said—using his nickname—"Curly, did you test the sediment in those wells?" "Well, no, no. We didn't test the sediment in the wells." And I said, "Why?" He said, "I don't know." But that's where the dioxin is, if any at all, in those wells.

There was some question brought up about the draft permit concerning the water color. When this whole thing started—the people in Cocke County for 80 years have been trying to get Champion to clean up the river. We didn't know about dioxin. I don't guess anyone knew about dioxin.

We have a headline, Mr. Chairman, that is a right interesting headline from a local newspaper. I believe it was the day the Titanic sank in 1914. Champion paper mill promised the people of Cocke County, TN and the State of Tennessee that they would clean up the river in 1914. This fight has been going on ever since then.

But recently the fight centered around water color. In 1986, Champion sued the EPA. The State of Tennessee joined in the lawsuit on the side of EPA. Champion sued in Federal District Court in western North Carolina. That is saying basically that you, the EPA, have no jurisdiction to tell us what we can put in the Pigeon River. Only the State of North Carolina has that jurisdiction. The State of North Carolina joined the lawsuit on the side of Champion.

So in the lawsuit it was *Champion and North Carolina* v. *EPA and Tennessee*. EPA said, and their position was in that lawsuit, that 50 water color units at the State line would be the only acceptable coloring unit that would not unduly impact on interstate waters and would comply with the Federal Clean Water Act.

Judge Sintell, there in the Western District of North Carolina, agreed with Tennessee and EPA. They won. Tennessee and EPA won. Champion appealed. The State of North Carolina did not even appeal. That case went up to the Fourth Circuit and was decided last week in EPA's favor.

But in the meantime, in the interim period, the State of Tennessee, Cocke County, Congressman Quillen, myself, and people who want the Pigeon cleaned up got caught up in, I guess, politics of sorts. The Presidential primary was coming up for North Carolina.

It seemed that Champion set out on a propaganda routine to tell the people of western North Carolina that they could not comply with this water color standard. They said that it was not possible and that it would cost too much. I sat through their hearing in North Carolina where they said it would cost $38.5 million to comply with this. That is over a matter of 10 years, Mr. Chairman, that it would cost this company to do that. Well, last year they netted over $400 million.

But being as it may, an agreement was struck between the governor of the State of Tennessee and the governor of North Carolina without anybody in Cocke County knowing about the agreement. Congressman Clark over in North Carolina—he represents the area where Champion is located—a quote is attributed to him of March 20, 1988. He said, "The fact that I endorse Gore really made the whole difference in his actions. Gore is a friend of Tennessee officials. Tennessee officials have now modified their stand."

Well, Mr. Chairman, after Tennessee officials modified their stand, they had to institute a procedure for the variance legislation because we did not have a variance legislation. That was done. It is really interesting that the procedure and the comments concerning that legislation that were given to the Tennessee legislators said that this was for the benefit of Champion. It did not mention at all that Tennessee and the EPA had won the lawsuit.

All we had to do was just wait on the appeal and we would have won. The appeal came through last week. But now we have this variance legislation we have to go through. August 18th and 19th we have the variance hearing. But that's all we had to do until presidential politics got in our way.

As you have said, this is a national problem. We are just the tip of the iceberg. Of the 30 percent of the paper mills that have been tested so far, we are number 2 as far as dioxin. No. 1 is a little place down in the Louisiana. Their TV stations came up to Cocke County last week. They are very interested. I submit at some point in time they will be sitting here where I am sitting today. You will be hearing from them.

Judge Panner's decision out in Oregon—that Ms. Strum got when she filed her Freedom of Information Act—said that it appeared that there was an agreement between the API and the EPA. I have only read the documents from the API that have been submitted to you. I have an extra copy if anybody wants to read them. I think without a doubt that there is absolutely no question that when you read these documents you will see what API and the pulp and paper industry set out to do in 1985 and 1986, and that was to take over the mind set of the EPA.

This is a new problem. I am not so sure that the EPA is able or qualified to delve into the scientific part of it at this point in time. I don't know that anybody is. But I do know this, after reading those documents, there should be further and more investigation into this matter.

I want to read to you—and I will be through in just a second—from the August 31, 1987, letter from Mr. John Thorner to Ms. Carol Roston, a document that came out of the documents that were leaked. It concerns the National Dioxin Study. By this time, API and EPA had entered into this joint agreement. It is a written agreement. It is in these documents.

Mr. Thorner said to Ms. Roston,

> You asked for my thoughts on the contents of any industry press kit for the release of the National Dioxin Study. As we briefly discussed, there is a chance that because other findings of the study already have been covered, the paper industry findings could engender press interest. As has been our goal all along, we need to prepare materials that would temper that interest.

Gentlemen of the committee, when these other people come before you for the next 5 years, 6 years, 10 years, they will want answers. And you want answers. You want the most truthful answers. You don't want information that has been tempered by the API.

He further says,

> I suggest we do that by making the paper industry findings appear to be old news. Specifically, we should note that the study has been out in draft form for over a year, that we have been aware of the paper industry findings, and that no one ever believed there was an immediate health threat.

It is in this context that we consider this major event. I wonder, gentlemen, if the EPA came before you with this information from the API, they would consider this a major event? I submit to you that the people of Hartford, TN, Cocke County, TN, and the people of Tennessee consider their dying with cancer a major event.

Thank you.

Mr. NOWAK. Thank you very much.

Let's move to Mr. Skip Taggart, who is the Hartford Environmental League Project Director.

Mr. TAGGART. Yes. I'm founder of the organization, Chairman Nowak. I'm aware of the committee's time constraints, so I will basically confine myself to my written statement with the summary. I'm aware that some of the information in this statement duplicates some previous testimony. But in the interest of time, I'm going to read through it.

Mr. NOWAK. If there is an opportunity to summarize, I might just mention we have tried to give everybody an opportunity within the confines of today's hours. We have on the list now 12 more witnesses. In addition to that, the president of the American Paper Institute wanted to address the committee, and a vice-president from Champion International.

So if you could summarize your testimony that to some degree has been expressed—and that's what usually happens later in the day when we have a committee—and there are particular points that you want to highlight, we would appreciate you highlighting that testimony. All of your testimony in written form will be incorporated in the record with your oral statement.

Mr. TAGGART. Chairman Nowak, Congressman Quillen, honorable committee members, my name is Skip Taggart—for the record Harry Arthur Taggart, Jr.—president of the Hartford Environmental League Project in Hartford, TN.

Hartford is an unincorporated little community that is nestled in the very heart of three National Park and Forest Systems: Pisgah National Forest, Cherokee National Forest, and the Great Smokey Mountains National Park. Far removed from any industrial activity whatsoever, the 277 families that are served by the Hartford Post Office have suffered a mortality rate from cancer and cancer-related illnesses over the past 40 years at an average of 20 percent of the population. Now we've been told by State health authorities that 20 percent is the national average and, therefore, is not alarming.

Statistical averages are arrived at by interpreting high and low responses. A community such as Hartford should be in a lower response group. We are not placated by the "statistical disregard" of our torturous death rate. For many decades, Hartford residents have suspected a link between cancer-related illnesses and the discharge of untreated pulp mill effluent into the Pigeon River.

Champion International Corp. has been operating the mill in Canton, NC, since 1908, dumping the full effect of its wastewater into a river that flows right through the middle of Hartford. It's foamy, the color of coffee, has an opaque blue/gray film on the surface, and its noxious fumes rekindle my memories of the smell of rotting flesh.

For almost a century now, generations of Hartford residents, men, women, and children have bathed, fished, and even drunk from this filthy river. For many, it has been their only source of recreation and escape from the heat of summer. For others, the Pigeon River's meager offering of carp, buffalo and bluegill was a much sought-after supplement to the dwindling larder of hard times.

Why would these good people quietly allow themselves to be subjected to this environmental abomination?

For the same reasons the people of Tottenville, Staten Island for many years waded through floating human feces to swim in the Raritan Bay.

For the same reasons people still fish in the Schuylkill River.

For the same reasons bowfishermen carry home their daily catches of golden carp from the Passaic River.

Congressmen Molinari, Borski, and Roe are familiar with these situations in their own districts.

But the people of Hartford had yet another reason to try and live with what seemed to be their lot in life. Champion was a major employer. They owned, and still own, thousands of acres of timberland in east Tennessee. The logging industry supplied what few jobs were to be had in Hartford until Champion clear-cut the forest lands and then walked away from Hartford like it was a bad dream.

It was not until 1981 that serious efforts by the State of Tennessee and local government began to try to clean up the Pigeon River. The Environmental Protection Agency's involvement came in 1983 and is already been documented here.

It was not until November of 1987 that the residents of Hartford learned the Pigeon River was contaminated with 2,3,7,8-tetrachlorodibenzo(p)dioxin. Reports and documents supplied by Greenpeace International, and verified by Judge Panner, outline an overtly duplicitous relationship between the Environmental Protection Agency and the American Paper Institute—of which Champion Paper is a heavily supportive member—to not only suppress public knowledge of dioxin production by pulp mills, but to delay and otherwise totally avoid complying with requests for dioxin-related joint Government/industry study material requested under the Freedom of Information Act. Again, that is documented in testimony here already.

In brief, Mr. Chairman, the Joint EPA/Industry Dioxin Study was a total and apparently successful effort by the American Paper Institute to manipulate the EPA to accept industry findings—and accept them as their own—concerning "safe levels" of dioxin in the paper products themselves in addition to toxic waste discharges into the environment. This extraordinary relationship between "the jailer and the inmate," so to speak, is apparently allowed under the Federal provisions of the Noerr-Pennington Doctrine.

It should be quite clear that Noerr-Pennington is a necessary document to promulgate and protect joint Government/industry ventures in matters regarding trade and commerce. It is another matter entirely, and a grave matter at that, when Noerr-Pennington allows heavy smoke industry to influence matters of public health.

These proceedings may come too late to save our Pigeon River from further destruction, but in the best interests of the Nation, we urge that Noerr-Pennington be struck down in matters of health and welfare.

In and around Hartford, TN, the EPA has so far demonstrated a total lack of scientific dioxin risk assessment procedure and clearly does not even understand the basic properties of dioxin.

They continue to harvest aquatic "grab samples" when their only scientific value is to determine the presence of a toxic compound. According to the U.S. Department of the Interior Fish and Wildlife Service toxic research procedure, the controlled monitoring of uncontaminated transplanted fish species should now be underway to determine the level and extent of dioxin contamination throughout the Pigeon River fisheries. EPA is neither conducting nor contemplating those experiments.

Dioxin research conducted by the U.S. Department of Agriculture and other organic scientists confirm dioxin is virtually insoluble in water. It is crystalline in composition and bonds strongly to soils and sediments. Yet when the EPA came to Hartford to randomly sample 10 household wells for dioxin contamination, they took only tapwater samples.

The day of the sampling followed four days of heavy rain. The local aquifers were full of fresh water surface runoff. If dioxin is in those wells, it is a threat to human life following long dry spells when water supplies are low and sediment from the bottom of the wells become agitated. EPA did not test well sediment for dioxin contamination.

However, they have taken sediment samples from parts of the Pigeon River. Those grab sample test results were released yesterday. As previously stated, three out of the four samples detected trace amounts of dioxin. But one sample from the Waterville Reservoir contained 13 parts per trillion dioxin. It's interesting that these procedures were not applied to the Hartford wells.

To add to an already terrible and tragically confused state of affairs, four different U.S. Government agencies have established three different levels of dioxin safety parameters. The USDA and Center for Disease Control use 1 part per billion, the Food and Drug Administration use 50 parts per trillion, and the EPA's current recommended level of .013 parts per quadrillion.

What has not been offered so far in testimony is that on reading from these different Government agencies, you'll find that these levels of dioxin were established for different types of dioxin migration. It is 1 part per billion in soil and 50 parts per trillion in the food chain. Its migration in water and air is still relatively unknown. The EPA evidently is just in defining their recommended level at .013 parts per quadrillion. We endorse that level.

Mr. Chairman, much of the testimony and debate at these hearings centers upon the suspected toxic nature of dioxin on higher life forms and humans. An important new scientific analysis procedure, developed by a researcher at Oak Ridge National Laboratories in Tennessee, has been employed to positively determine that beluga whales in Canada's Saint Lawrent River died as a direct result of eating eels contaminated with benzo(a)pyrene, another polycyclic aromatic hydrocarbon compound.

Benzo(a)pyrene and 2,3,7,8-tetrachlorodibenzo(p)dioxin are included by reference in the Federal Clean Water Act, section 307(a)(1), table 1, Committee Print Numbered 95-30 of the House Committee of Public Works and Transportation.

This new analysis technique for finding the chemical footprint of benzene compounds on DNA may soon positively identify 2,3,7,8-

tetrachlorodibenzo(p)dioxin as the genetic assassin that we believe it to be.

Therefore: the Hartford Environmental League respectfully petitions this committee to direct the Environmental Protection Agency to maintain its present recommended dioxin contamination limit of .013 parts per quadrillion; to cause NPDES permit holders and applicants to immediately abate and otherwise conform with these discharge standards; and to direct the decontamination of the Pigeon River in North Carolina and Tennessee under the provisions of the EPA Superfund Act, the public welfare requiring it.

There is something I just became aware of today. The sediment samples that were taken from the Waterville Reservoir and the Douglas Lake Reservoir have already been entered into testimony here. The EPA has already sat at this table and offered up much of the testimony.

What they did not testify to is that inadvertently during those sediment samplings, they found another toxic that is included on that same 95–30 publication, toluene. They didn't find it in parts per quadrillion. They didn't find it in parts per trillion. They found it in 25 parts per billion. They don't know what do to with it because they have no directive as to what the toxic level is.

So dioxin is not our only worry and trouble in Hartford, in Tennessee, and maybe even the Nation. I don't know much about toluene at this moment, but before the sun sets at the end of business tomorrow, I will.

Whole fish levels don't mean much to folks down in Hartford. When they catch a fish in the Pigeon River, they cut the head off, gut it out, and throw it in the frying pan. So whether it's in the fillet, or in the whole fish, it's going to be a whole mess of dioxin because it moves quite easily in oil when it's fried up in a pan.

The EPA now also wants to take over farm safety from the Occupational Safety and Health Administration. They have proposed new legislation that would require that farm workers couldn't go into the fields within 48 hours after the application of certain chemicals. After coming in contact with the produce and the soil in the field, they would have to be provided decontamination facilities.

The Environmental Protection Agency is taking good care of our farm workers. They are proposing tough new standards for chemical and toxic decontamination and exposure among farm workers.

Mr. Chairman, according to the EPA's own proposal, if they take over farm safety from OSHA, it is perfectly fine for the residents of Cocke County, TN to swim, fish, and bathe in the Pigeon River. But if they work on a farm that is irrigated with water from the Pigeon River they will have to be decontaminated. That is absurd. Sir, that is why we have zero confidence in the Environmental Protection Agency.

Reference the Superfund cleanup of the Pigeon River basin. I don't think it's too much to request, not when Superfund has already approved funds to clean up ABC One Hour Cleaners. Those funds were approved. ABC One Hour Cleaners, whatever toxic spill they had there, is going to be taken care of by Superfund. ABC One Hour Cleaners is located in Jacksonville, NC.

In closing, Mr. Chairman, I would like to make two personal appeals to this committee on behalf of all the families in Hartford.

First, after all the testimony has been offered and the committee gets ready for its deliberations, bring this entire committee to spend a day and a night with us in Hartford along the banks of the Pigeon River before you make any decision about the EPA. We don't have much, but we can guarantee you a place in our homes and a seat at our tables.

Second, please do it soon, because within the EPA, "the inmates are running the asylum" and the dioxin from Champion International in our river is running unabated.

That concludes my remarks, Mr. Chairman. I stand ready to answer any questions.

Mr. **Nowak**. Thank you.

Let us now turn to Mr. Dick Mullinix, who is from the Pigeon River Action Group.

Richard, if you want to go ahead now.

Mr. **Mullinix**. Mr. Chairman, and members of the committee, I've deleted a few paragraphs from the statement I was going to make to conserve time. If the statement lacks some continuity in places, that's the reason for it. I'm going to jump over those things that have already been discussed.

I am Dick Mullinix, chairman of the Pigeon River Action Group, a North Carolina based organization dedicated to forcing Champion International Paper Corporation and the State of North Carolina to clean up the foul condition of the Pigeon River. I have been involved in this endeavor for more than 10 years.

We work closely with our good neighbors in Tennessee who have had to tolerate an open industrial sewer flowing across the State line and through the downtown section of the town of Newport, the County Seat of Cocke County, a condition that has existed for 80 years. Opposition to our cause comes from political sources in the State government in North Carolina and Champion International Paper Corp. who use the threat of "closing her down" if you push too hard.

We are at a loss to understand the foot dragging in bringing Champion into line with the Clean Water Act and issuing a strict permit enforceable in North Carolina at the source of the pollution. EPA wrote such a permit. Champion, for reasons we fail to understand, refused to operate under the terms of that permit.

We want the pollution in the Pigeon River controlled at the mill where it originates. This would guarantee Tennessee a clean river as it flows across the State line. We do not want the North Carolina portion of the Pigeon River, some 35 miles, used as a mixing zone with the hope that by the time the river reaches Tennessee it will have been diluted by tributaries, rain, or snow, to the point where it might be marginally acceptable to our neighbors in Cocke County.

We have finally confirmed the presence of dioxin in the Pigeon River after having been told consistently for 10 years that there was absolutely no toxicity in the water of the Pigeon River from the mill. Dioxin found in recent tests made by EPA in some cases is three times the limit considered dangerous by FDA. One fish tested 80 parts per trillion. Based on that sample, the Pigeon River has the second highest level of dioxin of any river tested in the United States. The findings confirm the fears many of us have had for a long time.

Even now, with this evidence at hand, the State of North Carolina and Champion jointly ridicule the findings. Champion announced recently that they were spending $250,000 to run a test to end all tests and determine once and for all if there was any levels of dioxin in the Pigeon River. I have never seen the results of that test. I don't think anyone else has ever seen them.

The head of the Health Department of the State of North Carolina has seen the results of these tests along with information just made public that there are probably 500 direct sewer lines emptying untreated human sewage into the river. This alone makes the river unsuitable for swimming or drinking.

His answer to this information was "the level of dioxin is so slight that there is really no cause for concern." "We consider the river"—which is nothing more than a chocolate colored sewer, foul smelling, and coated with foam—"suitable for bathing and wading and you can even drink the water without any risk at all from dioxin." That's the head of the Board of Health's statement, Dr. Levine, who works closely with Champion, I'm sure.

Our good friends in Tennessee welcomed the Greenpeace organization who brought a team in to check the situation and hold a meeting to explain dioxin. We learned how dangerous it is. Following their investigation, they volunteered to post the river with signs. This group was clean cut, intelligent young people willing to risk their lives to put up signs along the river warning against eating fish and pointing out the dangers of dioxin. The signs have since been removed by Champion.

The State Health Department now says, well, we'll put our own warning signs. But they will point out that the problem is marginal and the water is perfectly suitable for recreational uses of all kinds, swimming, wading, and even drinking, an absolute and utter misrepresentation, totally absurd and untrue.

I have asked EPA to investigate the watering of dairy cattle in the Pigeon now known to contain dioxin. The cattle wade into the river stirring up the silt on the bottom where we are told the dioxin concentrates. Then they drink the water. Some of the dairy cows are slaughtered and eaten under some kind of a recent price control program. I am told the animals, like fish, store up high concentrations of dioxin if ingested. EPA promised to put this complaint on the agenda for this summer to test the milk from these producers. We would like to see this carried out.

I have spent many years of my life in the paper industry. I am mindful and sympathetic to their problems. I also know that the condition of the Pigeon River is the result of neglect and indifference. It can and must be corrected.

Regarding the color and temperature of the river, which is also a problem, the real crux of the problem is that Champion wants to make twice the amount of pulp and paper in that plant than the river can handle.

I thank you for the time allotted me. We will continue our struggle to achieve a healthy, clean river.

Mr. NOWAK. Thank you very much, each of you, for your testimony. In order to receive the testimony of the local citizens, let me say, once again, that we'll keep the record open.

I'll turn at this time to Mr. Stangeland for any questions he may have of this panel.

Mr. STANGELAND. I have no questions, Mr. Chairman.

I just thank the panel for their appearance and their testimony. Certainly, in reviewing it, I may come up with some written questions for later submission.

Mr. NOWAK. Mr. Quillen?

Mr. QUILLEN. I do thank you.

You know, one thing that intrigued me is that the EPA is going to moderate and take care of the farmers if they wade in the sludge that comes from a contaminated river, but they won't do anything with the river itself. To me that's a shocking, shocking statement.

Mr. Ball's film is one of the best I've ever seen. It clearly demonstrates the problem with the Pigeon River. I hope that it can be shown in many places.

Mr. Taggart, and Mr. Wilde, both of you did a good job. Mr. Mullinix, after seeing you on that film, Hollywood will be calling, I'm sure. [Laughter.]

Thank you very much.

Mr. BALL. Congressman Quillen, I'd like for the record to publicly thank Ray Struther and his group for producing it for us, and Van Boyet, who is a lobbyist here, for volunteering his services free of charge to our cause.

Thank you.

Mr. QUILLEN. Thank you, Mr. Ball.

Mr. NOWAK. Thank you.

I thank the members of the panel.

[The prepared statements of Mr. Wilde, Mr. Ball, Mr. Taggart, and Mr. Mullinix follow:]

This past December, 1987, during a meeting with citizens of Newport and Cocke County, Tennessee, in response to a question about any health hazards possibly present in the mill's effluent, the plant manager and company vice-president, Oliver Blackwell, replied that there was nothing in the water which would be danagerous to humans or livestock using the river.

Just a week later, members of the Dead Pigeon River Council received from Green-peace information that EPA and the paper industry had known for two years that paper mills produced dioxin. The truth had been kept hidden.

Over eighty years ago, the Pigeon River was sold to the highest bidder. Are people's health and welfare now being sold to the highest bidder? I call on you, the members of Congress and of this committee, to ensure that the EPA does, in fact, protect our environment for us and our children, and to see to it that the truth can no longer remain hidden from the people.

Gerald (Jerry) Wilde
President, Dead Pigeon River Council

The Pigeon River has been sold to the highest bidder.

When the paper mill was first being built on the banks of the Pigeon River, the people who lived along the banks of the river were not told of the detrimental effect it would have on their lives and health.

Imagine the shock these people received when the crystal-clear river was turned through the mill and came out black! A whole river! The truth had been kept hidden.

Periodically, over the last eighty years, Champion International Corporation has announced with great fan-fare each of a long line of promises to clean up the river. On each occasion, it was predicted that next year, or in a couple of years at most, the river would be clean and clear and safe to use for all forms of recreation, including swimming and fishing. Were each of these in a long line of lies deliberate? The truth was kept hidden.

When the Great Smokey Mountain National Park was being purchased, Champion protested that if it had to sell some of its timberland for the park, the mill would be forced to close with the loss of a great number of jobs. More than 50 years later, with a work force of more than 2000 people, we again hear the same dire threat of mass loss of jobs if Champion is forced to clean up their pollution of this once beautiful river. The truth has been kept hidden.

A
Report
Prepared
For

The United States House of Representatives
Water Resources Committee

by:
Harry Arthur Taggart, Jr. - President
The Hartford Environmental League Project
P.O. Box 87
Hartford, Tn., 37753
(615) 487-5087

Mr. Chairman; Honorable committee members,

My name is Harry Arthur Taggart, Jr., President of the Hartford Environmental League Project in Hartford, Tennessee. Hartford is an unincorporated little community that is nestled in the very heart of three National Park and Forest Systems; Pisgah National Forest, Cherokee National Forest and the Great Smoky Mountains National Park. Far removed from any industrial activity whatsoever, the 277 families served by the Hartford Post Office have suffered a mortality rate from cancer related illnesses over the past 40 years at an average of 20% of the population. We have been told by state and federal health authorities 20% is the National Average and is, therefore, not alarming.

Statistical averages are arrived at by interpreting high and low responses. A community such as Hartford should be in a lower response group. We are not placated by the "statistical disregard" of our TORTUROUS death rate. For many decades Hartford residents have suspected a link between cancer related illnesses and the discharge of untreated pulp mill effluent into the Pigeon River.

Champion International Corporation has been operating the pulp mill in Canton, North Carolina since 1908, dumping the full effect of its wastewater into a river that flows through the middle of Hartford almost 40 miles downstream. It is foamy, the color of coffee, has an opaque blue/gray film on the surface and its noxious fumes rekindle my memories of the smell of rotting flesh.

For almost a century now, generations of Hartford residents, men, women and children, have bathed, fished and even drunk from this filty river. For many, it has been their only source of recreation and escape from the heat of summer. For others, the Pigeon River's meager offering of Carp, Buffalo and Bluegill was a much sought-after supplement to the dwindling larder of hard times.

Why would these good people quietly allow themselves to be subjected to this environmental abomination?

For the same reasons the people of Tottenville for many years waded through floating human feces to swim in the Raritan Bay, Congressman Molinari.

For the same reasons people still fish in the Schuylkill River, Congressman Borski.

For the same reasons bowfisherman would carry home their daily catches of Golden Carp from the Passaic River, Congressman Roe.

And for the same reasons the uninformed continue to swim and play in the water off Miami Beach when the wind and the tide remind the city their two mile pipeline into the Atlantic Ocean isn't long enough, Congressman Shaw.

But the people of Hartford had yet another reason to try and live with what seemed to be their lot in life. Champion Paper was a major employer. They owned, and still own, thousands of acres of timberland in East Tennessee and the logging industry supplied what few jobs were to be had in Hartford until Champion clearcut the forestlands and then walked away from Hartford like it was a bad dream. It was not until 1981 that serious efforts by the State of Tennessee and local government began to clean up the Pigeon River. The Environmental Protection Agencys involvement came in 1983 and will be better documented in other testimony offered here, I'm sure.

It was not until November of 1987 that the residents of Hartford learned the Pigeon River was contaminated with 2,3,7,8 tetrachlorodibenzo(p)dioxin, a byproduct of the kraft bleaching process used by Champion at the Canton mill for decades. Reports and documents supplied to us by Greenpeace International, and verified by U.S District Court Judge Owen Panner, in Oregon, outline an overtly duplicitous relationship between the E.P.A. and the American Paper Institute, of which Champion Paper is a heavily supportive member, to not only suppress public knowledge of dioxin production by pulp mills, but to delay and otherwise totally avoid complying with requests for dioxin related joint government/industry study material, requested under the Freedom of Information Act. I expect the documentation of that relationship will also be provided in other testimony here, but if not, I stand ready to supply it to this committee upon request.

In brief, Mr. Chairman, the Joint E.P.A./Industry Dioxin Study was a total and apparently successful effort by the American Paper Institute to manipulate the E.P.A. to accept industry findings and accept them as their own concerning "safe levels" of dioxin in the paper products themselves, in addition to toxic waste discharges into the environment. This extrordinary relationship between "the jailer and the inmate" so-to-speak, is apparently allowed under the federal provisions of the Noerr-Pennington Doctrine.

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They continue to harvest aquatic "grab samples" when their only scientific value is to determine the presence of a toxic compound. According to United States Department of the Interior, Fish and Wildlife Service toxic research procedure controlled monitoring of uncontaminated transplanted fish species should now be underway to determine the level and extent of dioxin contamination throughout the Pigeon River fisheries. E.P.A. is neither conducting nor contemplating these experiments.

Dioxin research conducted by the U.S. Department of Agriculture and other organic scientists confirm dioxin is virtually insoluable in water. It is somewhat crystaline in composition and bonds strongly to soils and sediments, yet when the E.P.A. came to Hartford to randomly sample 10 household wells for dioxin contamination they took only tapwater samples. The day of the sampling followed four days of heavy rain and the local aquifers were full of fresh surface run-off. If dioxin is in those wells, it is a threat to human life following long dry spells when well water supplies are low and sediment from the bottom of the wells becomes agitated. E.P.A. did not test well sediment for dioxin contamination, however they have taken sediment samples from parts of the Pigeon River's bed. Those sample test results have not yet been released.

To add to an already terrible and tragically confused state of affairs, four different U.S. Government agencies have established three different levels of dioxin safety parameters. The U.S.D.A. and Center for Disease Control use 1 part per billion, the Food and Drug Administration at 50 parts per trillion and the E.P.A.'s current level of .013 parts per quadrillion.

In closing, Mr. Chairman, I would like to make two personal appeals to this committee on behalf of all the families in Hartford, Tennessee.

First; after all testimony has been offered and the committee gets ready for its deliberations, declare a recess and bring this entire committee to spend a day and a night with us in Hartford along the banks of the Pigeon River before you make any decision about the E.P.A. We don't have much but we can gaurantee you a place in our homes and a seat at our tables.

And second; please do it soon because within the E.P.A., "the inmates are running the asylum" and the dioxin from Champion International in our river is running unabated.

Amendment

Mr. Chairman, much of the testimony and debate at these hearings will probably center upon the suspected toxic nature of dioxin on higher life forms and humans. An important new scientific analysis procedure, developed by a researcher at Oak Ridge National Laboratories in Tennessee, has been employed to positively determine beluga whales in Canadas Saint Lawrence River died as a direct result of eating eels contaminated with benzo(a)pyrene, another polycyclic aromatic hydrocarbon compound. Benzo(a)pyrene and 2,3,7,8-tetrachlorodibenzo(p)dioxin are included by reference in the Federal Clean Water Act, Section 307(a)(1), Table 1, Committee Print Numbered 95-30 of the House Committee of Public Works and Transportation.

This new analysis technique for finding the chemical footprint of benzene compounds on DNA may soon positively identify 2,3,7,8-tetrachlorodibenzo(p)dioxin as the genetic assassin we believe it to be.

Therefore; the Hartford Environmental League respectfully petitions this committee to direct the Environmental Protection Agency to maintain its present dioxin contamination limit of .013 parts per quadrillion; to cause NPDES permit holders and applicants to immediately abate and otherwise conform with these discharge standards, and; to direct the decontamination of the Pigeon River in North Carolina and Tennessee under the provisions of the EPA Superfund Act, the public welfare requiring it.

Respectfully submitted to the United States House of Representatives, Water Resources Committee, Washington, D.C., this 13th day of July, 1988.

Harry Arthur Taggart, Jr.

Harry Arthur Taggart,Jr. - President

The Hartford Environmental League Project
P.O. Box 87
Hartford, Tn. 37753
(615) 487-5087

MULLINIX STATEMENT

HOUSE PUBLIC WORKS AND TRANSPORTATION COMMITTEES SUB-COMITTEE ON
WATER RESOURCES - JULY 13, 1988 - 10 A.M. - CAPITOL HILL

I AM DICK MULLINIX, CHAIRMAN OF THE PIGEON RIVER ACTION GROUP, A NORTH CAROLINA BASED ORGANIZATION DEDICATED TO FORCING CHAMPION INTERNATIONAL PAPER CORPORATION AND THE STATE OF NORTH CAROLINA TO CLEAN UP THE FOUL CONDITION OF THE PIGEON RIVER. I HAVE BEEN INVOLVED IN THIS ENDEAVOR FOR MORE THAN TEN YEARS.

WE WORK CLOSELY WITH OUR GOOD NEIGHBORS IN TENNESSEE WHO HAVE HAD TO TOLERATE AN OPEN INDUSTRIAL SEWER FLOWING ACROSS THE STATE LINE AND THROUGH THE DOWNTOWN SECTION OF THE TOWN OF NEWPORT, THE COUNTY SEAT OF COCKE COUNTY, A CONDITION THAT HAS EXISTED FOR EIGHTY YEARS. OPPOSITION TO OUR CAUSE COMES FROM POLITICAL SOURCES IN THE STATE GOVERNMENT AND CHAMPION INTERNATIONAL CORPORATION WHO USE THE THREAT OF "CLOSING HER DOWN" IF YOU PUSH US TOO HARD.

WE FINALLY WON A SUIT BROUGHT JOINTLY BY THE STATE OF NORTH CAROLINA AND CHAMPION AGAINST PIGEON RIVER ACTION GROUP AND THE U.S.ENVIRONMENTAL PROTECTION AGENCY CONTESTING THE RIGHT OF E.P.A. TO TAKE OVER THE PERMITTING AUTHORITY FROM THE STATE. CHAMPION APPEALED THAT DECISION AND LOST THE APPEAL LAST WEEK. THE AUTHORITY IS NOW SQUARELY IN THE HANDS OF E.P.A.

WE ARE GRATEFUL FOR THE COOPERATION WE HAVE HAD FROM E.P.A. BUT WE ARE AT A LOSS TO UNDERSTAND THE FOOT DRAGGING IN BRINGING CHAMPION INTO LINE WITH THE CLEAN WATER ACT AND ISSUING A STRICT PERMIT ENFORCEABLE IN NORTH CAROLINA AT THE SOURCE OF THE POLLUTION. E.P.A. WROTE SUCH A PERMIT AND CHAMPION, FOR REASONS WE FAIL TO UNDERSTAND REFUSED TO OPERATE UNDER THE TERMS OF THAT PERMIT.

WE WANT THE POLLUTION IN THE PIGEON RIVER CONTROLLED AT THE MILL WHERE IT ORIGINATES. THIS WOULD GUARANTEE TENNESSEE A CLEAN RIVER AS IT FLOWS ACROSS THE STATE LINE. WE DO NOT WANT THE NORTH CAROLINA PORTION OF THE PIGEON RIVER (35 miles) USED AS A MIXING ZONE WITH THE HOPE THAT BY THE TIME THE RIVER REACHES TENNESSEE IT WILL HAVE BEEN DILUTED BY TRIBUTARIES, RAIN OR SNOW, TO THE POINT WHERE IT MIGHT BE MARGINALLY ACCEPTABLE TO OUR NEIGHBORS IN COCKE COUNTY.

WE HAVE FINALLY CONFIRMED THE PRESENCE OF DIOXIN IN THE PIGEON RIVER AFTER HAVING BEEN TOLD CONSISTENTLY FOR 10 YEARS THAT THERE WAS NO TOXICITY IN THE WATER. DIOXIN FOUND IN RECENT TESTS MADE BY E.P.A. IN SOME CASES IS THREE TIMES THE LIMIT CONSIDERED DANGEROUS BY THE

EVEN NOW, WITH THIS EVIDENCE AT HAND, THE STATE OF N.C. AND CHAMPION RIDICULE THE FINDINGS. CHAMPION ANNOUNCED RECENTLY THAT THEY WERE SPENDING $250,000 TO RUN A TEST TO END ALL TESTS AND DETERMINE ONCE AND FOR ALL IF THERE WERE ANY LEVELS OF DIOXIN. I HAVE NEVER SEEN THE RESULTS OF THAT TEST. THE HEAD OF THE HEALTH DEPARTMENT OF THE STATE OF N.C. HAS SEEN THE RESULTS OF THESE TESTS ALONG WITH INFORMATION JUST MADE PUBLIC THAT THERE ARE PROBABLY 500 DIRECT SEWER PIPES EMPTYING UNTREATED HUMAN SEWAGE INTO THE RIVER. THIS ALONE MAKES THE RIVER UNSUITABLE FOR SWIMMING OR DRINKING. HIS ANSWER TO THIS INFORMATION WAS "THE LEVEL OF DIOXIN IS SO SLIGHT THAT THERE IS REALLY NO CAUSE FOR CONCERN." WE CONSIDER THE RIVER (which is nothing more than a chocolate colored sewer, foul smelling and coated with foam) SUITABLE FOR BATHING AND WADING AND YOU CAN EVEN DRINK THE WATER WITHOUT ANY RISK AT ALL FROM DIOXIN.
OUR GOOD FRIENDS IN TENNESSEE WELCOMED THE GREENPEACE ORGANIZATION WHO BROUGHT A TEAM IN TO CHECK THE SITUATION AND HOLD A MEETING TO EXPLAIN DIOXIN. WE LEARNED HOW DANGEROUS IT IS. FOLLOWING THEIR INVESTIGATION THEY VOLUNTEERED TO POST THE RIVER WITH SIGNS. THIS GROUP WERE CLEAN-cut, INTELLIGENT YOUNG PEOPLE WILLING TO RISK THEIR LIVES TO NAIL SIGNS UP ALONG THE RIVER, WARNING AGAINST EATING FISH AND POINTING OUT THE DANGERS OF DIOXIN. THE SIGNS HAVE SINCE BEEN REMOVED BY CHAMPION. THE STATE HEALTH DEPARTMENT NOW WAYS IT WILL PUT UP IT'S OWN WARNING SIGNS B UT THEY WILL POINT OUT THAT THE PROBLEM IS MARGINAL AND THE WATER IS PERFECTLY SUITABLE FOR RECREATIONAL USES OF ALL KINDS, SWIMMING, WADING AND EVEN FOR DRINKING. AN ABSOLUTE AND UTTER MISREPRESENTATION. TOTALLY ABSURD AND UNTRUE. I HAVE ASKED EPA TO INVESTIGATE THE WATERING OF DAIRY CATTLE IN TH PIGEON NOW KNOWN TO CONTAIN DIOXIN. THE CATTLE WADE INTO THE RIVER STIRRING UP THE SILT ON THE BOTTOM WHERE WE ARE TOLD THE DIOXIN CONCENTRATES; THEY THEN DRINK THE WATER. SOME OF THE DAIRY COWS ARE SLAUGHTERED AND EATEN UNDER SOME KIND OF A RECENT PRICE CONTROL PROGRAM. I AM TOLD THE ANIMALS, LIKE FISH, STORE UP HIGH CONCENTRATIONS OF DIOXIN IF INGESTED. EPA PROMISED TO PUT THIS COMPLAINT ON THE AGENDA FOR THIS SUMMER TO TEST THE MILK FROM THESE PRODUCERS. WE WOULD LIKE TO SEE THIS CARRIED OUT.

I HAVE SPENT MANY YEARS OF MY LIFE IN THE PAPER INDUSTRY AND I AM MINDFUL AND SYMPATHETIC TO THEIR PROBLEMS. I ALSO KNOW THE CONDITION OF THE PIGEON RIVER IS THE RESULT OF NEGLECT AND INDIFFERENCE AND IT CAN AND MUST BE CORRECTED.

I THANK YOU FOR THE TIME ALLOTED ME. WE WILL CONTINUE OUR STRUGGLE TO ACHEIVE A HEALTHY, CLEAN RIVER.

Mr. Nowak. We will now go to our second last panel. After the local citizens, hopefully we can spend some time with the pulp and paper industry representatives here today.

We will have Mr. Bob Seay, director of Newport County Chamber of Commerce; Dr. Michael Hood, who is a scoutmaster, Newport Chapter, Boy Scouts of America; Mr. James B. Runnion; and Dr. Steve Gore. We also had requests—and we'll ask you to either join them at the table or around the table—Jeff Foster, Newport Lions Club; Edward McDonald; Ms. Cindie J. Runnion; and Phil Owens.

Mr. Seay, if you would like to start your testimony.

TESTIMONY OF BOB SEAY, EXECUTIVE DIRECTOR, NEWPORT/COCKE COUNTY CHAMBER OF COMMERCE; MICHAEL T. HOOD, M.D., ASSISTANT SCOUTMASTER, ACCOMPANIED BY CHAD STRANGE; JAMES B. RUNNION: STEVE GORE, M.D.; JEFF FOSTER, NEWPORT LIONS CLUB; CINDIE J. RUNNION; EDWARD Mc DONALD; AND PHIL OWENS

Mr. Seay. Mr. Chairman, distinguished committee members, ladies, and gentlemen, my name is Bob Seay. I am the executive director of the Newport/Cocke County Chamber of Commerce. The directors of the chamber asked me to address this body on their behalf.

A basis function of any chamber of commerce is to enhance the quality of life for its membership and the people it represents. The Newport/Cocke County Chamber of Commerce demonstrated to the community its concern over the Pigeon River pollution as early as 1986. In December of this year, the chamber sponsored a new year's bell ringing ceremony entitled "The Bell Tolls for Champion." Little did we know, as over 100 people gathered at midnight on McSwain Bridge in Newport, that the river is toxic.

The stream has desecrated the business district for over 80 years. I am not here to discourage industry, but to encourage it. My purpose is one that is reflective of Cocke County. Why did citizens have to ban together to request the help of the Environmental Protection Agency in investigating dioxin contamination from Canton, North Carolina to Douglas Lake, TN. The lake is some 60 miles downstream of Champion's pulp and paper mill.

When did the Environmental Protection Agency know about dioxin in the Pigeon River? Why did Region IV EPA, under the direction of Bruce Barrett, director of Water Management Division, not take appropriate action and start control testing in 1986? Mr. Barrett ordered tests in November 1987 and in January 1988. The tests that have been conducted on fish are grab samples, electroshocking for dioxin data collection.

Mr. Barrett, why have you not sought complete fish studies on caged fish at 90, 180, and 360 day intervals? When random sampling occurs, who knows how long the fish have been in tributary streams, or in the actual black sewer sent on us by Champion?

Mr. Barrett, in an EPA press release R-143 dated September 24, 1987, immediate action was taken by your Agency to control human exposure to dioxin. Who directed you lackadaisical behavior concerning the Pigeon River gorge and valley? Mr. Barrett, we know you obtain your direction from superiors. Mr. Barrett, the river should and will be the source of life, not one filled with deadly carcinogens ingested for generations in a bountiful fish catch in my mountain homeland.

A fish caught in Waterville Reservoir—a big beautiful brown trout weighing 12 pounds—was contaminated to 80 parts per trillion in the fillet with dioxin. Mr. Barrett, this fish is in water your Agency says has little sediment contamination and no water contamination. EPA, I demand an explanation. Trout are not bottom feeding fish. Did our old granddaddy trout consume only flies for 20 years? Or does this warrant more thorough investigation since this lake water races to a seven mile tunnel without dilution into Tennessee.

Levels and concentrations of chloroform were found in Hartford, TN. The residents have eaten fish containing minute levels of dioxin and chloroform for years. I ask of this distinguished committee, why were the residents of my county and city not warned of these dangers before July 7, 1988.

I would like to acknowledge the Hon. James H. (Jimmy) Quillen for his efforts on behalf of his constituents in requesting this inquiry. Congressman Quillen has fought for this river publicly and privately for several years.

The Newport/Cocke County Chamber is united in its efforts to clean the Pigeon River. We cannot use this waterway for industry or recreation. Tennessee State officials know of the concentration of effluent in the Pigeon River. It cannot stand or take any more effluent regardless of the source.

Historically, we have had one of the highest levels of unemployment in the State of Tennessee. The efforts of this committee can, and will, mean the difference in a dioxin free Pigeon River as well as other water sources in America.

The national drought is prominent on the minds of all concerned Americans. By proper action of the Subcommittee on Water Resources, you can change history and restore life to waterways known to be filled with dioxin from paper mills.

Champion International Corp. has long ignored Appalachia. Mr. Andrew C. Ziegler, president of Champion International Corp., your day has come. The people have spoken. No longer will Cocke County tolerate your corporate behavior. We must consider using the Pigeon as a drinking source within the next few years.

Sevier County will draw this dioxin-infested water for consumption by thousands of tourists fishing in the Great Smokey Mountains National Park. Is this what we want in Tennessee? Mr. Ziegler, Lake Logan is a corporate playground with water as God made it, pure, clear, and pristine. That's all we are asking.

Mr. Ziegler, Champion International Corp. pollutes the Pigeon River. Admit it. Don't attempt to hide behind the American Paper Institute or EPA. Implement technology for which you own a patent, ultra filtration. If not, secure a new technology owned in western North Carolina by two scientists.

Cocke County will not allow the State of Tennessee to grant a variance without concessions in writing from Champion on discharges in dioxin. Cocke County says be a credible corporate citizen. Let the Pigeon live.

Thank you for your attention.

Mr. Nowak. Thank you very much.

Dr. Michael Hood?

Dr. Hood. I am an assistant scoutmaster. I have a Bachelor of Arts in chemistry. I also worked my way through college as a chemist in an environmental lab where we worked to clean up effluents from industry. I am a medical doctor.

My main reason for coming today was to come as a citizen who is a utilizer of the Pigeon River for recreation. I canoe the river. I have fished the river for sports fishing. I've actually eaten fish out of the river, but just to taste them. I don't like the taste. It tastes pretty bad.

But the Pigeon River, compared to the surrounding rivers, the Ocoee, the New River, the Nantahala is a spectacular white water rafting river. My son, who couldn't come, just took a clinic in kyacking at Nantahala. The instructor said that they were planning on moving a major part of their rafting and canoeing to the Pigeon River if it was cleaned up.

The fish in the river are very scarce. When I go down and fish, I never catch over five at a time, as compared to the Nolichucky that I live right next to where there is an abundance of fish. I have never seen another person on the river at the same time that I have been canoeing or fishing, whereas every time I pass the Nolichucky, there are people fishing or utilizing the river.

I have done a literature search to see how toxic dioxin is. Of all the rat studies that have been done, they have never discovered a safe level of dioxin for rats. Every group of rats subjected to the smallest dose that they could give them developed cancer.

I have brought a couple of my scouts with me. One in particular, Chad, his grandfather is our troop chaplain. He remembers the river before it was polluted. I'd like Chad to tell you just one sentence about what his grandfather told him. Chad?

Chad Strange. My grandfather, when he was little, they used to go down and cut blocks of ice out of the river and store it in their ice box for the summer. But now that the dioxin is in the river, it just won't freeze anymore. I would like to be around to see when the river would freeze and to see them cut blocks of ice out of the river again.

Dr. Hood. One of the problems with the river is a—the discovery of dioxin in the river is a mixed blessing. Even though it may give us a better chance of getting it cleaned up, it has created such a monstrous phobia of the river that no one will even go near it anymore.

I would like to address this discussion about what Ms. Ellen Silbergeld said about the EPA's need for more study of the kraft process that is used to bleach the paper. She said that the EPA is trying to look at the little chemical reactions that are going on in the process to somehow alter it to make it better, or to actually prove that it is causing a problem.

As a physician, for the last 40 years we've known that fats cause high cholesterol. We've known that fats produce arteriosclerotic heart disease. Not until a recent study 2 years ago was it actually proven that fats in the arteries lead to heart attacks. But for those past 40 years, we have taken action with our patients to try to reduce the level of fats in their diet.

What she was trying to say is we've got to take action now. We know that when chlorine goes into pulp bleaching that dioxin comes out. We don't have to know why. We have enough evidence that these things are causing problems. The reason that we're having trouble taking action is because of the complexity of the reactions of dioxin in people. It's not like DDT, where we knew that the egg shells in the eagles were becoming fragile. They were breaking, and we were going to lose our bald eagles. It's a more complex problem, but the evidence that dioxin is a serious problem is there. I think we should act on it.

As far as the amount of dioxin in the water being like 19 seconds in 30,000 years, we all know of the recent incidence where we had one person in our country who was found as a spy and who seriously damaged our national defense. All it took was one out of millions to do serious damage. I suggest to you, sirs, that dioxin is just as serious as that.

I take objection with the comment that the color is not a serious health hazard. Dioxin is broken down by sunlight. The more color there is in the water, the less dioxin will be able to break down as a natural process.

You may ask me, why, if I think this river is so dangerous, are we having our boy scouts in the river every Monday practicing our canoeing? The answer is that I don't have to worry about them having a lot of horse play and tipping that canoe over. They're not going to with what they know about the river.

Also, I did want them to come in contact with this river that is so extremely polluted so that it will be etched in their minds. Someday, when it's clean, they will remember what it was like and that they had an active part in cleaning in up.

Thank you very much.

Mr. NOWAK. Thank you very much. Mr. James Runnion.

Mr. RUNNION. Mr. Chairman, committee members, Congressman Quillen, and other interested parties, I am James B. Runnion of Newport, Cocke County. I am a property owner on Douglas Lake in Jefferson County. We have a summer place there and have used it for boating and recreation for some 20 years.

I was devastated when it was shown that the waters of the Pigeon River contain the poison dioxin. To realize that the Environmental Protection Agency was aware of this possibility and did not even test the Pigeon River was unbelievable.

For over 80 years Champion International has been using the waters of the Pigeon River as their private sewer and dumping their effluent from the paper producing process into it. It has been substantiated that the waters into which other similar paper producers dump their waste is contaminated.

This being the case, it can be assumed that the fish and other aquatic life will contain high levels of dioxin. We question that if this be the case, why did the Environmental Protection Agency not test the waters of the Pigeon River until they were forced to do so? We found that when the testing was done, those places that were the least likely to contain fish with a high level of dioxin were tested, such as where a small stream would enter into the river.

In 1980, Carolina Power & Light was forced to drain the Waterville Lake to make necessary repairs to the tunnels carrying water to the Walter's power plant. It was found that the sediment from the Canton, NC, mill of Champion International was over 40 feet deep at the base of the dam.

When the lake was to be filled, large crevices in the sediment had been cut by the running water and flushed into the waters of Douglas Lake. It has now been determined that the fish in Douglas Lake contain unacceptable levels of dioxin.

Where will this all stop? Only when the Environmental Protection Agency enforces the Clean Water Act of 1972 which specifically prohibits the using of any river, lake, or ocean to dilute the effluent being dumped into it.

Thank you.

Mr. Nowak. Thank you very much.

Our next witness, Dr. Steve Gore.

Mr. Gore. I'm speaking primarily as a local physician in the community of Newport. I was a scientific expert on water pollution. However, I'm going to omit part of my comments which have already been discussed today.

At the end, I would like to delineate some of the health effects of dioxin or the chlorinated organic compounds which have not been yet discussed.

I also wanted to emphasize that the harmful effects from Champion's pollution of the river is not confined to toxicity. It also has a very harmful effect to the economic development of Cocke County. It causes a loss of tourism revenues and the loss of land values to the real estate along side the river—land which is beautiful from a scenic standpoint with its relation to the surrounding mountains, but is not suitable for home construction along the river due to the odor of the river vapors as well as the appearance of the water.

Furthermore, as Dr. Hood previously pointed out, the geology and the stream course of the Pigeon River makes it potentially one of the premier white water rafting rivers within the southeastern United States. At this present time there's virtually exploitation of that potential. It could bring, as stated previously, thousands of dollars of revenue into Cocke County.

Cocke County, as you know, has high unemployment. It's one of the most economically depressed regions, not only in Tennessee, but in the entire southeastern United States.

I don't believe it's necessary to indict dioxin as a cancer causing element, although I don't dispute that. But I would like to share with you some of the findings of medical papers that I've reviewed in preparation for this meeting today.

It has been tested, as you probably know, probably more than any other toxin that has been discovered. There are a number of other effects in experimental animals as well as in humans which have been delineated.

Extensive research has shown dioxin to be one of the most potent poisons, probably comparable to that of plutonium. Incidently, it's not necessary to prove that dioxin causes cancer to show that it's poisonous, nor is it necessary to assume that plutonium is radioactive for it to be poisonous. Plutonium would be one of the most potent poisons even if it were not radioactive.

The effects on experimental animals vary unpredictably from one species to the next. But in rhesus monkeys, which is the species felt to be the most similar to man in sensitivity, as little as 1.7 nanograms, per kilogram body weight, has been shown to cause spontaneous abortion in over 50 percent of the animals exposed.

Other findings in experimental animals have included lymphatic atrophy, suppressed antibody responses, increased susceptibility to virus, liver enlargement, porphyria, subtle alterations in behavior and disruption of social organization with impaired mating, depressed spontaneous motor activity, endocrine alterations, hair loss, fetal malformations, and increased susceptibility to other cancer-causing agents.

In humans, the data is more sparse and thus less conclusive. But reported effects in known exposures have included reduced stamina. The most disturbing long-term effect that I've discovered in my papers in humans of the trace levels of dioxin has been a lasting impairment of the immune response.

In 1986, Richard Hoffman, an associate at the Centers for Disease Control has found altered T-4 and T-8 lymphocyte ratios and a failure of cell mediated immunity to produce characteristic, observable responses to intradermal injections of most common test antigens. This is a condition known as anergy, a failure to respond to a skin test. This alteration is also found in patients on immunosuppressive cancer chemotherapy and as an early manifestation of AIDS.

Although it may be years before the chronic low level of dioxin shows its effect, it may have serious health consequences, particularly for women of childbearing years. It's more alarming since it has already been learned that dioxin becomes concentrated many thousands of times as it moves upward through the food chain and becomes deposited through the ingestion of food within human body fat tissue.

In fact, it shouldn't be necessary to prove that dioxin is hazardous to humans before it should be found to be something that EPA should control. For example, DDT is another example cited by Dr. Hood which is toxic not to humans but to birds. There is definite toxicity of dioxin and other chlorinated hydrocarbons to wildlife as well as to humans.

Personally, I don't feel it should be necessary to prove that dioxin is even present in the river to justify EPA enforcing Champion to change its process to reduce its effluent effects. It doesn't take a biochemist, toxicologist, or a wildlife ecologist to see that the river is grossly polluted and unsuitable for recreation or as a fish habitat.

I believe that the best solution to the problem short of closing the mill is to convert its production from that of white paper to that of brown paper and eliminate the bleaching process entirely. There's a readily available market for brown paper and, as has been discussed earlier today, it's possible that through public relations and increased consumer awareness, there will soon be an increased consumer demand for unbleached brown paper.

The Canton paper mill is unique among very few mills in America which uses 100 percent of the stream flow of the Pigeon River, unlike a lot of mills which are on much larger rivers. Therefore, I feel that if the mill is going to be left open in production at all, it should use a process which has the least impact on the effluent water quality.

Thank you very much.

Mr. NOWAK. Thank you very much.

We have Jeff Foster from the Newport Lions Club.

Mr. Foster.

Mr. FOSTER. Thank you, Mr. Chairman.

Mr. Chairman, and members of this committee, my name is Jeff Foster. I am a doctor of optometry in practice in Newport, TN.

I am here testifying today in behalf of the Newport Lions Club, of which I am a past president. The Newport Lions Club is most grateful for this hearing as your committee explores why our Environmental Protection Agency has, in our humble opinion, failed to be the progenitor of the efforts to once again make the Pigeon River in Cocke County, TN, a healthy and productive asset to our troubled community.

We are certainly grateful also to your colleague and our Congressman, Hon. Jimmy Quillen for all his rigorous efforts, including the formulation of this hearing, to once again make the Pigeon River a dioxin-free source of water, recreation, fish, industry, and employment for all the citizens of Cocke County, TN.

The Pigeon River has been having the carcinogenous dioxin compounds issued into it by Champion International Corp. since 1908. I do not believe at any time during that period that the color unit level been sufficiently low enough—as Dr. Gore mentioned just a minute ago—to allow the natural sunlight to penetrate the water, destabilize, and thus destroy those accumulating dioxin compounds. Consequently, the potential recreational and economic impact upon the area this river traverses has been virtually nil.

Mr. Chairman, I'm going to shorten my remarks just a little bit, because a great deal of what I was going to say has already been said. I will just pose a question to the committee, if I may.

Mr. Chairman, why has our Environmental Protection Agency taken so long to try to improve this horrible situation, enforce our current State laws in Tennessee concerning color of the water, and stop the issuance of dioxin into the Pigeon River? And this something I refer to is, at best, a compromise that does not even require the eradication of the dioxin.

I have another question for you please.

This morning, when Mr. Barrett and Ms. Prothro from the EPA were testifying about the levels of dioxin that EPA has found in fish in the Pigeon River, they did admit that a little dioxin had been found in some fish there. Neither of them mentioned—that I can remember—the fish that had the 90 units of dioxin in it. I wonder why they did not mention that fish this morning? I'm very puzzled by that.

We in the Newport Lions Club find this appalling. We so passionately hope that your committee will seek and find the answer to that question and thus, in some way, help give us, as a reality, our dream for that river—which is simply this: that on the third day of creation, God delineated the waters and pronounced them "good." But now the avarice of Champion International Corp. and the inertness of the Environmental Protection Agency has compelled that river to be lethal.

I thank you.

Mr. Nowak. Thank you very much.

I'm sorry we're in the middle of a vote again on the House floor. Once again, we'll have to take a 10-minute recess and ask—I'm just informed that this is a motion to recommit the trade bill. So following that in the procedure, we will probably have 15 minutes to vote on final passage of the trade bill. So it will be a 30-minute recess, approximately. We'll be back to hear the rest of the testimony and the last panel from Champion.

[Recess.]

Mr. Nowak. The subcommittee will come to order.

There are some people who have to catch airplanes. Therefore, if we could take our seats and proceed.

We will hear now from the local citizens panel, Ms. Cindie J. Runnion.

Ms. Runnion. Thank you for the opportunity to speak to you today. I hope I don't sound too awful. This is different than teaching third grade, obviously.

My name is Cindie Runnion. I am a teacher in the Cocke County School System. As a teacher, I like to feel that I am helping to shape the future of my county, and indeed, my country.

As we look to the bicentennial of the signing of the constitution by which this great land is governed, we are teaching about the laws that govern it in the classrooms from coast to coast.

How can we teach children that there is equal justice for all when we have a polluted river, such as the Pigeon River, flowing through our county, knowing it is allowed to be so by a Federal Agency, the Environmental Protection Agency?

How can we teach that laws do not favor the rich and powerful when EPA so obviously favors the American Paper Institute and one of its members, Champion International, the major polluter of the Pigeon River?

How can you teach children to have faith in the Government of the United States when it does not protect them and enforce the laws?

Cocke County children are beginning to feel that the Government of the United States does not care about them. I hope today is a chance to reverse that feeling with our children.

How can the EPA allow Champion to stay in operation when a fish was determined to contain 80 parts per trillion of dioxin? We are sure that this is only one of many such contaminated fish. If we were significant people in the eyes of EPA, this fish—which is one of the most contaminated fish ever tested in the United States—should have triggered extensive testing to confirm these results. The testing that has been done in Cocke County is so minimal that it's been an insult to the people of Cocke County.

We owe it to our children to provide the best future possible for them. Do we want our children to be left with a land polluted to an unusable state? They deserve a better heritage than this.

In the words of Christa McAlliff, "I touch the future, I teach." I hope we will start to protect the future. If we are going to have anything left in the world that is still pure and clean, I hope we will consider putting our future in better hands than that of the Environmental Protection Agency.

Thank you.

Mr. Nowak. Before you leave, Ms. Runnion, have you had your class, or the other school children, write to Champion and express those sentiments that you just told us to give to EPA?

Ms. Runnion. We have not at this point. We do discuss it quite often in the classroom.

Mr. Nowak. Well, sometimes we find that there is even greater impact than what happens in Washington if it comes directly from the participants that are in the field.

Ms. Runnion. Excuse me. Some of our older children in the school have written letters to the Environmental Protection Agency, to our Governor——

Mr. Nowak. Yes. But I'm saying there's an intermediate step here.

Ms. Runnion. Yes.

Mr. Nowak. The Environmental Protection Agency doesn't run Champion.

Ms. Runnion. True.

Mr. Nowak. It's a business that's run in the market system in your community, or near your community. I think sometimes, if they hear directly from students, interested citizens, and interested groups, it has a larger impact. Because that's the community they're living with day by day. So I hope that you'll take that into consideration.

Ms. Runnion. Thank you, sir.

Mr. Nowak. The sentiments are, I think, very good. I think they should be expressed all over. Certainly, they will be part of this hearing record also.

Ms. Runnion. Thank you.

Mr. Nowak. Thank you very much.

We will continue.

We have, to my knowledge, two other witnesses. Edward McDonald, is he here?

Mr. McDonald. Yes.

Mr. Nowak. Mr. McDonald, do you want to commence with your testimony?

Mr. McDonald. Mr. Chairman, and members of the subcommittee, thank you.

I appreciate the opportunity to address this august body and testify about an issue that is extremely important to me, my neighbors, and to the future of our children.

I am Edward McDonald. I live in Hartford, TN, about 2 miles from the Pigeon. I have worked as a whitewater raft guide on the Pigeon, a job that I now find has probably put my life at risk.

The mountainous area of east Tennessee has long had a well-earned reputation as an underdeveloped area. Many communities of this region have improved their quality of life by inviting tourists to enjoy and share the beauty of the area, providing economic growth and greater prosperity for the local residents.

To a large extent, Mr. Chairman, these opportunities have been denied the people of Cocke County because the Pigeon River—one of our most attractive natural resources—is visually and chemically polluted by Champion International, our corporate neighbor 40 miles upstream.

It has been estimated that due to the present state of the Pigeon, our county loses $7.3 million per year in recreational benefits. That $7.3 million, I might add, is more than the entire budget of Cocke County, exclusive of State and Federal funds. These moneys do not even take into consideration other economic potentials of a clean river.

The Environmental Protection Agency is mandated by law to protect and preserve the quality of the air and water of this country. The Agency should realize the importance of a clean, viable river to the future generations of inhabitants of the communities along its shores. Sadly, the EPA seems to be taking the role of the fox guarding the chicken coop.

This has not always been true. When it was established that Love Canal had been polluted with dioxin, the EPA forced Hooker Chemical, the polluter, to remove all soil contaminated with more than 1 part per trillion of dioxin. Later, when Times Beach was found to be contaminated with the same chemical, the EPA, for some reason, established more lenient requirements.

In 1983, Congress ordered the EPA to do the National Dioxin Survey. In 1986, the EPA did the five mill study. The results of these studies were not released to the public. They were withheld until Greenpeace gained their release through the Freedom of Information Act.

Was that because the American Paper Institute assisted EPA with the studies? Is it because a link was discovered between dioxin and the paper and pulp industries? It seems only too likely that powerful corporate interests influenced EPA's decision to withhold the results of the study to the detriment of the general populace.

On April 11, 1988, Mr. Bruce Barrett was kind enough to come and meet with a group of citizens from Hartford and Cocke County to try to persuade us to accept a "compromise" agreement made between EPA, the States of Tennessee and North Carolina, and Champion International. "Trust me," he said. But when asked simple questions concerning the hazards of pollution of the river, his response time and again was, "That is not my area of expertise." Neither did he bring his staff members whose area of expertise encompassed this.

At that time, Mr. Barrett admitted to no Agency standards for safe levels of dioxin. He said nothing about the suspicion of dioxin in the river. He said that EPA chooses other Agency's standards for safe levels of dioxin. One must wonder what, if any, is EPA's and Mr. Barrett's "area of expertise."

Why is the EPA reluctant to face the issue of dioxin in the Pigeon River head on? Why, for instance, is there no suggestion by the EPA to monitor the total organic chlorine levels as an indicator of the toxicity of the effluent of Champion's mill rather than the currently suggested less reliable spot checking for fish for dioxin levels?

Gentlemen of the committee, there are many cost effective, safe, and reliable solutions to the problems of pollution of our lakes and streams. But these solutions will not be found or put in place by back peddling agencies that pander to huge corporate desires. The very future of our way of life demands the Pigeon River, and all of our waterways, be free of toxic poisons. You've entrusted that responsibility to the Environmental Protection Agency. It seems they are not doing their job.

I would personally like to thank the group Greenpeace, which has informed me of the dangers of dioxin and the potential of their presence.

I think it's a shame that in the United States of America, one of the greatest powers of the earth, that an international environmental organization seems to be in closer touch to the situation than our own Environmental Protection Agency.

Thank you, sir.

Mr. NOWAK. Thank you very much.

We have one further witness, Phil Owens.

Mr. Owens, if you'll start your testimony. We will bring the panel back for questioning.

Mr. OWENS. Mr. Chairman, thank you.

I know that my written statement will be in the record. If I could, I'd rather—than again rehash things you've heard many times today—take just a couple of moments to basically summarize what I feel is the tenor of my written statement.

I'm an attorney that practices law in Newport. I'm also the owner of a beautiful piece of Pigeon River front property. It's where my office is located. I can tell you that—you've heard about this stench, the foul odor. You saw the video tape today of the pungent brown water. On many occasions, I've had out of town attorneys come to my office for depositions, or whatever reason. They walk in, and you can just tell by the look on their face that the odor that permeates the building every night is just breathtaking.

I can walk out behind my office on the riverbanks, look upstream, and see the mounds of foam floating down the river. It's a crying shame. I was born and raised in Newport, Cocke County, less than a mile from the Pigeon River. When I was a child, I just learned to accept the Pigeon River being what it was. It was just this sewer. That's the way it was when my father was born, the way he grew up. We all learned to accept it. We thought that's just the way it was and that there was nothing that we could do about it.

Now in recent years, the Congress has created the Environmental Protection Agency. Still, here we sat in Newport, Cocke County for many years, nothing ever being done. There were no questions even raised. That was probably because we were conditioned over 80 years to accept it being that way.

Now we've asked for help. What we have found is that we're not getting the help from Government that we should be getting. One of the purposes of Government is to protect and assist its citizens. That certainly not been the case in our dealings with the Environmental Protection Agency.

I think from the tenor of the testimony that you all have heard here today, it's quite easy to see that—as the old saying goes—something's rotten in Denmark. If you all would take up some of these offers and come to Cocke County—as Representative Quillen has many times—and see this river, you would realize the seriousness of the problem.

I'd be more than happy for you to come in behind my office and go fishing off the river bank. I don't know that you'd do any good. I don't know that you'd want to grab hold of the fish to take the hook out once you caught it—if you were able to catch anything.

Again, this problem is severe. It requires action from this committee to demand that the Environmental Protection Agency answer—answer not only to this committee, but answer to the public, answer to the people of Cocke County and western North Carolina. Tell us why, in the eyes of the EPA, we're less important than the people on the Love Canal? Why are we less important than the people on Times Beach? We're tired of being third-class citizens in Cocke County, TN. We're just as good as everybody else. We would sure appreciate the Environmental Protection Agency realizing that and recognizing us.

Thank you.

Mr. NOWAK. Thank you very much, Mr. Owens.

I appreciate your statement. I appreciate the others who have taken the time to come to the committee from Tennessee and North Carolina.

Local organizations such as you represent—and in some instances, yourselves, or your communities—really do have an impact on what happens here, and what happens in the communities. I'm sure that had this organization existed 20 years or 30 years ago, you may today not have the problem existing, at least in the dimension it is today.

We tend to focus attention where the greatest cry, the greatest need, or the greatest concern is, I guess you would say. Many times, like every institution, you almost have to have a crisis before it becomes an action program that actually does something about the problem.

We have Mr. Seay. Is he still here?

Mr. RUNNION. No, sir. He had to catch a plane.

Mr. NOWAK. Mr. Seay has left.

How about Mr. Foster? Is Mr. Foster still here?

Mr. RUNNION. No.

Mr. NOWAK. He left.

But they represent the Chamber of Commerce. I don't know how large that organization is, but many Chambers exchange information.

What we're trying to do is generate a lot of thought among business groups and business organizations to come to some kind of a discussion in matters like these that affect different communities, and yet, are very close. I would say that there's a lot of kids that maybe play back and forth in this area.

Hopefully, we could gather some of the good will that's existing in each community, perhaps for separate reasons, and bring some focus on this. When you have an organization like EPA come in, they could join then some type of perhaps broader and quicker response with the communities that are jointly pursuing some initiative.

Again, let me thank you for coming. Your testimony will certainly be a part of the record. We'll supplement some of the "expert" testimony on this dioxin problem which, if you didn't know before you came here, is a very complex situation that many are learning more and more about every day.

Let me turn now to my colleague, Arlan Stangeland, for any questions that he may have.

Mr. STANGELAND. I don't have any questions, Mr. Chairman. I want to thank these folks for coming in.

I was just noting in the testimony that some of your people praised the EPA and the willingness for EPA to work with you. Some of you condemned EPA for being slow-acting. I just want to say this:

The law is established in a certain way that the State is charged with the permitting responsibility. The law is also written in such a way that it allows businesses and industries—if they think the Federal Agency or the State agency is not treating them fairly—to go and sue in court.

In this case, a permit was issued by North Carolina. Tennessee and EPA didn't think that permit was adequate enough, so they went to court. So to blame EPA totally is not fair. Now the court has ruled. It has decided. Now I think that EPA has the strength of the law and the court action to take some action with Champion. I'm sure they will.

In defense of Champion, I'm sure they still want to know exactly what kind of processes they have to use to solve their problem. I think it's safe to say that they've known for some time dioxin was being discharged.

There's still a very, very mixed opinion as to the total effect of the dioxin as a hazard to human health, in this case, and the extended levels of it.

You can rest assured that we're going to be working with the EPA to see that there is a resolution here as rapidly as possible, and within reasonable limits.

I'd also say that you might want a well check right in your own back yard. If you've got 500 pipes dumping raw sewage in that river, you are not stewards yourselves of the kind of pure environment that you're really asking for.

I think your testimony has enlightened us. I'm sure that it has enlightened EPA. I'm sure that it has enlightened Champion. I have a Champion mill in my district. They, to my knowledge, have been good neighbors and good stewards of the environment in my district in Minnesota. I would hope that we can convince them to be good stewards of the environment in your little community down there in Hartford, and on the Pigeon River, and in Newport.

I thank you for your testimony.

Mr. OWENS. Mr. Chairman?

Mr. NOWAK. Yes?

Mr. OWENS. Could I just make one comment to Representative Stangeland?

There is one thing that I think is important to note. When we talk about the problem of the open sewer lines running into the river, I think that one point I wanted to make is that the people that live along the river for the past 80 years have become so accustomed to it being a sewer itself that they more or less have the attitude of what difference does it make.

When the top party that is contributing to the pollution does nothing to improve it, it's kind of hard to convince these other people that they should do anything either on a small individual basis. It does kind of just set the entire frame of mind for everyone in the area. It's depressing, to say the least. It's depressing.

I agree with what you say, but I hope you can also understand our point of view.

Mr. RUNNION. Mr. Stangeland, may I make one comment there. I believe that the 500 open pipes were on the North Carolina side of the line rather than on the Tennessee side.

Mr. STANGELAND. I don't care where they are. They hadn't ought to be dumping raw sewage in the river.

Mr. RUNNION. That's right.

Mr. NOWAK. Congressman Quillen?

Mr. QUILLEN. Thank you, Mr. Chairman.

I know you have been very patient today, Mr. Chairman, and Mr. Stangeland, for your holding this hearing so long. We still have some time to go. But I want to thank all of you for being here, raising these important issues, and pointing out in very crystal-clear language the problem that we face. It's real.

I know of no open sewers into the Pigeon in Cocke County. I'm sure if there are, they realize they should not be. But at the same time, Champion Paper Co. should realize that they should not pollute the river. EPA, the guardian of our clean water, should also realize that something must be done. So I think that all of you made very fine statements.

Thank you for being here. It's late. We apologize, but our patience is with you. Thank you very much.

Mr. NOWAK. Let me also thank the panel.

We will, again, keep the record open if there's any supplemental material anybody wants to send to the committee.

[The prepared statements of Mr. Seay, Dr. Hood, Mr. Runnion, Dr. Gore, Mr. Foster, Ms. Runnion, Mr. McDonald, and Mr. Owens follow:]

STATEMENT OF BOB SEAY

Mr. Chairman, Distinguished Committee members, Ladies and Gentlemen, My name is Bob Seay. I am the Executive Director of the Newport/Cocke County Chamber of Commerce. The directors of the Chamber asked me to address this body on their behalf.

A basic function of any Chamber of Commerce is to enhance the quality of life for its membership and the people it represents. The Newport/Cocke County Chamber of Commerce demonstrated to the community its concern over the Pigeon River pollution as early as 1986. In December of this year, the Chamber sponsored a New Years Bell Ringing Ceremony entitled "The Bell Tolls for Champion".

Little did we know as over 100 people gathered at midnight on McSween Bridge in downtown Newport that the river is toxic. The stream has desecrated the business district for over 80 years.

I am not here to discourage industry but to encourage it. My purpose is one that is reflective of Cocke County. Why did citizens have to ban together to request the help of the Environmental Protection Agency in investigating dioxin contamination from Canton, North Carolina, to Douglas Lake, Tennessee? The lake is some 60 miles downstream of Champion's pulp and paper mill.

When did the Environmental Protection Agency know about dioxin in the Pigeon River? Why did Region IV RPA under the direction of Bruce Barrett, Director of Water Management Division, not take appropriate action and start controlled testing in 1986?

Mr. Barrett ordered tests in November 1987 and January 1988. The tests that have been conducted on fish are grab samples—electro shocking for dioxin data collection. Mr. Barrett, why have you not sought complete fish studies on caged fish at 90, 180, and 360 day intervals? When random sampling occurs who knows how long the fish have been in tributary streams or in the actual black sewer sent on us by Champion. Mr. Barrett in an EPA Press Release R-143 dated September 24, 1987, immediate action was taken by your agency to control human exposure to dioxin. Who directed your lackadaisical behavior concerning the Pigeon River gorge and valley?

Mr. Barrett we know you obtain your direction from superiors. Mr. Barrett the river should and will be the source of life, not one filled with deadly carcinogens ingested for generations in a bountiful fish catch in my mountain homeland.

A fish caught in Waterville Reservoir—big beautiful Brown Trout weighing 12 pounds was contaminated to 80 ppt in the fillet with dioxin. Mr. Barre[illegible]his fish is in water your agency says has little sediment contamination and no wat[illegible]ontamination. EPA, I demand an explanation, trout are not bottom feeding fish. Did our old granddaddy trout consume only flies for 20 years? Or does this warrant more thorough investigation since this lake water races through a 7-mile tunnel without dilution into Tennessee?

Levels and concentrations of chloroform were found in Hartford, Tennessee. The residents have eaten fish containing minute levels of dioxin and chloroform for years. I ask of this distinguished committee—why were the residents of my county and city not warned of these dangers before July 7, 1988.

I would like to acknowledge the Honorable James H. "Jimmy" Quillen for his efforts on behalf of his constituents in requesting this inquiry. Congressman Quillen has fought for this river publicly and privately for several years.

The Newport/Cocke County Chamber is united in its efforts to clean the Pigeon River. We cannot use this waterway for industry or recreation. Tennessee State Officials know of the concentration of effluent in the Pigeon River. It can not stand or take anymore effluent regardless of the source.

We historically have had one of the highest levels of unemployment in the State of Tennessee. The efforts of this committee can and will mean the difference in a dioxin-free Pigeon River as well as other water sources in America.

The national drought is prominent on the minds of all concerned Americans. By proper action of the committee on water resources, you can change history and restore life to waterways known to be filled with dioxin from paper mills. Champion International Corportation has long ignored Appalachia. Mr. Andrew C. Ziegler, President of Champion International Corporation, your day has come. The people have spoken. No longer will Cocke County tolerate your corporate behavior. We must consider using the Pigeon as a drinking source within the next few years. Sevier County will draw this dioxin infested water for consumption by thousands of tourists visiting the Great Smoky Mountains National Park. Is this what we want in Tennessee? Mr. Ziegler, Lake Logan is a corporate playground with water as God made it, pure, clear, and pristine. That is all we are asking. Mr. Ziegler, Champion International Corporation pollutes the Pigeon River—admit it, don't attempt to hide behind the American Paper Institute or EPA. Implement technology for which you own a patent ultrafiltration. If not secure a new technology owned in western North Carolina by two scientists. Cocke County will not allow the State of Tennessee to grant a variance without concessions in writing from Champion on discharges and dioxin.

Cocke County says be a credible corporate citizen "Let the Pigeon Live".

Thank you for your attention.

TESTIMONY FROM MICHAEL T. HOOD, M.D., ASSISTANT SCOUTMASTER

I am an assistant Scoutmaster for Troop 296 in Newport. Our troop utilizes the Pigeon River to train our new scouts in canoeing. This summer we are planning a canoe trip to the Boundary Water Canoe area in Minnesota so we are spending every Scout meeting on this river.

The Pigeon River is one of my favorite rivers to canoe. I start at Hartford and end in Newport. I have taken several raft trips from Waterville down to Hartford. I have rafted the Nantahala and the Ocoee and the New River and the Pigeon River not only has the most beautiful scenery but also the most spectacular white water rafting.

I have canoed the Pigeon River to fish and have caught brim and bass there. I have never been down the river for a day of fishing and caught more than five fish.

The fish are more scarce in the Pigeon than in the Nolichucky River where there is an abundance of them. The fish smell just like the river after being cooked; and in eating them, they taste just like the river smells. I have eaten fish out of the river one time and decided that, after trying the taste, I would never eat them again. I had no idea there was a possibility of dioxin in the fish.

In my opinion, there are four major problems with the Pigeon River. The worst problem esthetically is the smell. The river can be smelled from my office which is a quarter of a mile away. It is amazing how accustomed to the smell one can become. Whenever my friends come from out of town, they always want to know if there is a problem with the sewage system in the town. I have to tell them this is due to the river.

The second and third most esthetic problems, in my mind, are the soapsuds that are on top of the river and the color of this water. The color of the water coming out of the reservoir and down the pipe into the energy generating facility at Waterville is a coffee color. Watching this water mixing with the crystal clear water coming out of Deep Creek from the Smokies is almost heartbreaking in a way because one can see the potential the river has. The bottom of the river is a mud-like, greasy, sludge that makes wading very dificult even with felt soled boots.

The fourth problem with the Pigeon is with dioxin. This, of course, is not an esthetic problem but, in my opinion, is the most dangerous one. In my literature search utilizing the library in Kansas City where the Academy of Family Practice has its headquarters, I have not been able to find a study which establishes a safe level of dioxin. In virtually all of these studies where rats were fed dioxin, there was no concentration small enough which did not cause cancer. It is very mysterious to me that we were not made aware of the presence of dioxin in this river until Greenpeace brought it to our attention at the EPA Hearing in Knoxville, TN.

I have brought three of my scouts with me for this trip. One of our scouts, Matthew, has been walking the Appalachian Trail for 278 miles by himself to raise money to help save the Pigeon River. He has pledges for $1200. We have interrupted his trip so that he could come to this hearing. Matthew was walking on the Appalachian Trail which goes through Western North Carolina which is where the Nantahala Outdoor Center is. He spent a day kayaking with instructors there and they told him something very interesting which I thought you might like to hear. [Matthew tells how the instructors at the Nantahala Outdoor Center told him that they would move a substantial part of their rafting, canoeing and kayaking to the Pigeon River if it was cleaned up.] Another of my Scouts, Shannon Parks, would like to tell you about an incident which occurred at the EPA hearings in Knoxville. [Shannon testifies about Michael, one of our Scouts, and how he likes the taste of the fish and has been eating them for some time.] This was upsetting to me but brought great applause from the visitors from Champion Paper. Another of my Scouts here today is Chad Strange. His grandfather is our troop chaplain and I want Chad to tell you what the river was like before Champion began polluting it. [Chad recites how blocks of ice were taken from the river in the wintertime and stored in an icehouse for utilization in the summer for the restaurants in town for iced drinks.]

You may ask that, if I think this river is so dangerous, why do I still let Boy Scouts go canoeing on it. The answer is that this is the one place I don't have to worry about them trying to tip the canoe over. There is such a great fear of this river now by the inhabitants of Cocke County that it has become unreasonable, a phobia. The river is being avoided like a plaque. Secondly, I want these young men to come in contact with a river that is so extremely polluted that it will be etched upon their minds so that some day when it is clean they will remember what the river was like and that they had an active part in cleaning it up.

STATEMENT OF JAMES B. RUNNION

I am James B. Runnion of Newport, Cocke County, Tennessee, and a property owner on Douglas Lake in Jefferson County, Tennessee. We have a summer place there and have used it for boating and recreation for over 20 years. I was devastated when it was shown that the waters of the Pigeon River contain the poison, dioxin and then to realize that the Environmental Protection Agency was aware of this possibility and did not even test the Pigeon River was unbelievable. For over eighty years Champion International has been using the waters of the Pigeon River as their private sewer and have dumped their effluent from the paper producing process into it. It has been substantiated that the waters into which other similar paper producers dump their waste is contaminated, then the fish and other acquatic life will contain high levels of dioxin. We question, that if this be the case, why did the Environmental Protection Agency not test the waters of the Pigeon until they were forced to do so and then we found that when testing was done that those places that were the least likely to contain fish with a high level of dioxin were tested, such as where small streams would enter the river. In 1980, Carolina Power and Light Company was forced to drain the Waterville Lake to make necessary repairs to the tunnels carrying water to the Walter's Power Plant. It was found that the sediment from the Canton, North Carolina mill of Champion International was over 40 feet deep at the base of the dam. When the lake was to be filled, large crevices in the sediment had been cut by the running water and flushed into the waters of Douglas Lake. It has now been determined that the fish in Douglas Lake contain unacceptable levels of dioxin in their tissue. Where will this all STOP? Only when the Environmental Protection Agency enforces the Clean Water Act of 1972 which specifically prohibits the using of any river, lake, or ocean to dilute the effluent being dumped into it.

STATEMENT OF JEFF FOSTER

Distinguished Ladies and Gentlemen of this assembly. My name is Jeff Foster and I am a Doctor of Optometry in practice in Newport, TN. I am here testifying today in behalf of the Newport Lions Club of which I am a past president. The Newport Lions Club is most grateful for this hearing as your committee explores why our E.P.A. has, in our humble opinion, failed to be the progenitor of the efforts to once again make the Pigeon River in Cocke County, TN a healthy, productive asset to our troubled community.

We are certainly grateful also to your colleague and our Congressman, the Honorable Jimmy Quillen for all his rigorous efforts, including the formulation of this hearing, to once again make the Pigeon River a dioxin-free source of water, recreation, fish, industry, and employment for all the citizens of Cocke County, TN.

As you have heard already today, the Pigeon River has been having the carcinogeous dioxin components issued into it by Champion International Corporation 50–60 miles S.E. of Newport, TN in Canton, N.C. since 1908. I do not believe at any time during that period has the color unit level been sufficiently low enough to allow natural sunlight to destabilize thus destroy those accumulating dioxin compounds. Consequently, the potential recreational and economic impact upon the area this murky river traverses has been virtually nil.

In a comprehensive study entitled "An Economic Impact Analysis on the Recreational Benefits of a Restored Pigeon River" by Drs. Orville E. Bach and William H. Barnett of Walters State Community College in Morristown, TN, we are told that economists refer to a situation such as this as an external diseconomy which occurs when one entity's use of a resource damages another entity that cannot obtain proper compensation.

My remarks to you today concentrate primarily upon the economic impact of what a clean and health Pigeon River would be for the area that this river serves.

If our E.P.A. had—upon their conception—done their job—and decreed that Champion would restore the Pigeon River to a suitable recreational level, this river area could have expected a recreational value of 112 percent over revenues generated by the Nantahala River near Bryan City, N.C. and 158 percent over that of the Hiwassee River in S.E. TN. That bottom line comes out being that the direct benefits to Cocke County could approximate $18,330.00 over the next 10 years. The total impact upon the economy including jobs, fishing, and all other related commerce could remain as high as $73,330.00! (Ret. study by Bach and Barnett).

Friends and neighbors we are talking here about adding—potentially—this much money to a local economy that within the last 5–10 years has staggered up to 33 percent and is still nearly tops in the state. This is not to mention what an assist this would be in allowing us to maintain our education system which has just a very bare bones budget that I doubt we will be able to properly finance.

Drs. Bach and Barnett continue by saying that when an external diseconomy occurs, such as Champion's unloading dioxin into the Pigeon River, economists agree that direct government regulation is justifiable and is the simplest and most direct means to change the outcome for the affected society.

Why has our E.P.A. taken so long to try something to improve this horrible situation, enforce our laws, and stop the issuance of dioxin into the Pigeon River?–and this something I refer to is, at best, a compromise that does not allow the eradication of the dioxin!

We in the Newport Lions Club so passionately hope that your committee will seek and find the answer to that question and thus, in some way, help give us, as a reality our dream for that river—which is simply this—that on the 3rd Day of Creation. God delineated the waters and pronounced them "GOOD". . . . but now the avarice of Champion International Corporation and the inertness of our E.P.A. has impelled the Pigeon River to be lethal.

Respectfully submitted, Jeff Foster, O.D.

STATEMENT OF CINDIE J. RUNNION

Gentleman, my name is Cindie Runnion, and I am a teacher in the Cocke County School System. As a teacher, I like to feel that I am helping to shape the future of my county and indeed my country.

As we look to the Bi-Centennial of the signing of the Constitution by which this great land is governed, we are teaching about the laws that govern it in the classrooms from coast to coast. How can we teach children that there is equal justice for all, when we have a polluted river, such as the Pigeon River flowing through our county, knowing it is allowed to be so by a Federal agency, the Environmental Protection Agency? How can we teach that laws do not favor the rich and powerful when EPA so obviously favors the American Paper Institute and one of its members, Champion International, the major polluter of the Pigeon River? How can you teach children to have faith in the government of the United States when it does not protect them and enforce the laws? Cocke County children are beginning to feel that the government of the United States does not care about them.

How can the EPA allow Champion to stay in operation when a fish was determined to contain 80 parts per trillion of dioxin? We are sure this is only one of many such contaminated fish. If we were significant people in the eyes of EPA, this fish, which is one of the most contaminated fish tested in the U.S., should have triggered extensive testing to confirm this result. The testing that was done was so minimal that it was an insult to the people of Cocke County.

We owe it to our children to provide the best future possible for them. Do we want our children to be left with a land polluted to an unusable state. They deserve a better heritage than this.

In the words of Christa McAlliff, "I touch the future, I teach." I hope we will start to protect the future. If we are going to have anything left in the world that is still pure and clean, I hope we will consider putting our future in better hands than that of the Environmental Protection Agency.

STATEMENT OF EDWARD MCDONALD

Mr. Chairman, Members of the (sub)committee. I appreciate the opportunity the opportunity to address this august body and to testify about an issue that is extremely important to me, my neighbors, and to the future of our children.

I am Edward McDonald. I live in Cocke County Tennessee, about 2 miles from the Pigeon River, and have worked as a whitewater raft guide on the Pigeon. A job that I now find may have put my life at risk!

The mountainous area of East Tennessee has a well-earned reputation as an underdeveloped region. Many communities of this region have improved their quality of life by inviting tourists to enjoy the beauty of the area, providing economic growth and greater prosperity for the local residents. To a large degree, those opportunities have been denied the people of Cocke County because the Pigeon River, one of our most attractive natural resources, is visually and chemically polluted by Champion International, our corporate neighbor 40 miles upstream. It is estimated that due to the present state of the Pigeon our County loses $7.3 million per year in recreational benefits, that is approximately $3,300 per person employed at the Canton mill. This does not even take into consideration the other economic potential of a clean River.

The Environmental Protection Agency is mandated by law to protect and preserve the quality of the air and water of this county. The agency must realize the importance of a clean, viable River to the future generations of inhabitants of the communities along its shores. Sadly the EPA seems to be taking the role of the fox guarding the chicken coop. This has not always been true. When it was established that the Love Canal had been polluted with TCDD (dioxin) the EPA forced Hooker Chemical, the polluter, to remove soil contaminated with more than 1 part per trillion of dioxin. When Times Beach Mo. was found to be contaminated with the same chemical, the E.P.A. for some reason established more lenient requirements for the clean up, presumably for economic reasons.

In 1983 Congress orderd the EPA to a *National Dioxin Survey*. Three years later though the survey had been completed, the results were not publicly available, perhaps because of the link discovered between dioxin and the pulp and paper industry or perhaps because the American Paper Institute assisted the EPA with the Survey. Was this decision not to release due to powerful big business lobbying the E.P.A.? One can only suspect.

On April 11, 1988 a Mr. Barrett, the Atlanta regional director for EPA met with citizens of Hartford and Cocke County to try to make us accept a "compromise" agreement between EPA, the States of Tennessee and North Carolina and Champion International. "Trust me" he said. But when asked simple questions concerning the hazards of the pollution of the river his response time and again was "that is not my area of expertise." Mr. Dorrett admitted to no agency standards for levels for TCDD (dioxin) instead he said the EPA chooses to use other agencie's standards instead of its own, this five years after the *National Dioxin Survey* was ordered. One must wonder what if any is EPA's and Mr. Barrett's "area of expertise."

Why is the EPA reluctant to face this issue of dioxin in the Pigeon River head on? Why for instance is there no suggestion by the EPA to monitor the Total Organic Chlorine levels present in the effluent of Champion's plant in Canton?

Ladies and Gentlemen of the committee that are cost effective and reliable solutions to the problems of pollution of our lakes and waterways in the United States but they will not be found or put in place by back peddling agencies pandering to huge corporations' desires. The very future of our way of life demands that the Pigeon River and all our our water ways be free of toxic pollution! You have entrusted that responsibility to the Environmental Protection Agency and they are not doing their job.

STATEMENT OF PHIL OWENS

Mr. Chairman, honorable subcommittee members, my name is Phil Ownes. I am an attorney in Newport, Tennessee where I own riverfront property on the Pigeon River, upon which my office sits.

Having been born and raised less than one mile from the Pigeon, I am acutely aware of its problems. I grew up accepting the dark, foul smelling river, just as my father had before me. The Pigeon River simply was the way it was Generations have felt that there was nothing that could be said or done that would change things.

Everyone knew what caused the Pigeon to be the way it was, the discharge from the large Champion Paper Mill in Canton, North Carolina. Upstream from the mill, the Pigeon was, and still is, a pristine beauty; downstream was very akin to a sewer. Champion has always promised to clean up the river at least since 1912, but little has ever been done.

While the color and odor of the Pigeon River has and continues to be a primary concern, a much more serious and deadly problem also confronts us, that of dioxin. Since the 1983 National Dioxin Study was conducted by the Environmental Protection Agency, everyone, including Champion and the entire paper industry, has known that dioxin is a byproduct of the chlorine bleaching process used in the production of paper. Such a process is employed by Champion at the Canton mill.

What puzzles all who are concerned about the Pigeon, is why the EPA has not done more before now. Not only to correct the dark color and pungent smell, but even more importantly, the potentially deadly dioxin pollutant!

Until very recently, no tests for dioxin had been conducted on the Pigeon River. For its 1983 study, EPA used water samples from the near-by French Broad River and Cataloochie Creek to establish test standards for dioxin-free water. It is reasonable to assume that it was common knowledge at EPA, that the large Champion mill in Canton was using chlorine bleaching process and the low flowing waters of the Pigeon. Why was the Pigeon River overlooked?

Before the 1983 dioxin study results were released, the American paper industry recognized a problem existed with the chlorine bleaching process, but seemed more concerned with hiding the effects and minimizing public concern. The old Canton mill still continues to pollute the Pigeon using that dangerous process. Why didn't the EPA require Champion, and the others, to switch to a safer process to lower the risks associated with dioxin?

It is understandable for us to wonder what the EPA is doing. Even now the EPA has proposed a draft permit for Champion, which sets specific limits in the color and odor of the effluent discharge into the Pigeon, while the only requirement concerning the deadly dioxin potential is that levels be monitored by Champion and reported infrequently to EPA.

What the people along the Pigeon sense is that they are of little consequence when compared to the Champion Corporation. Why was the Love Canal more important? Why was Times Beach more important? Why isn't government taking care of us? Isn't that one of the governments primary functions, to protect it's citizens? We all need answers to these questions.

The EPA was created to ensure that the environment is protected, not to assist big business in legally abusing that environment. When the environment is injured, so are those who are exposed to it. Its high time that the government do its job.

The Pigeon River has been overlooked too long; the compromises too extreme. Action must be taken at once to assure us all that something will be done to clean up the Pigeon. Promises and excuses get old. We've been waiting since 1912.

Mr. NOWAK. Our last group of witnesses are from the pulp and paper industry.

We have Mr. Richard Diforio, who is vice president of Champion International Corp.; and Mr. Red Cavaney, president of American Paper Institute.

Gentlemen, if you'll come to the table. Mr. Cavaney, I understand you will give the first testimony.

TESTIMONY OF RED CAVANEY, PRESIDENT, AMERICAN PAPER INSTITUTE; AND RICHARD DIFORIO, VICE PRESIDENT, CHAMPION INTERNATIONAL CORP.

Mr. CAVANEY. Thank you, Mr. Chairman, for the courtesy of your time, and also the other members of your committee, and Congressman Quillen.

My name is Red Cavaney. I am president of the American Paper Institute, on whose behalf I appear today. The 175 pulp and paper companies who hold membership in API manufacture 90 percent of the U.S. production of pulp, paper, and paperboard.

I am pleased to appear before you today to discuss how the industry responded to the unexpected discovery of previously undetectable trace amounts—in the parts per trillion and parts per quadrillion range—of dioxin in some bleached pulp and paper mill treated effluents, sludge, and pulp.

This is an effort to which the members of API and our research organization, NCASI—which is the National Council of the Paper Industry for Air and Stream Improvement—have committed our full resources. This has included using the best science available and often pushing the boundaries of existing technology to get to the bottom of this matter. We are equally committed that the inquiry be conducted in the open with information provided to interested parties as it is generated.

I ask that my full statement be included in the record, Mr. Chairman. In the interest of time I will summarize it. There are just a few parts of that testimony that I would like to underscore on our behalf.

Mr. NOWAK. Without objection.

Mr. CAVANEY. Thank you.

First, I'd like you to understand the newness of this issue. The first findings of dioxin in selected pulp and paper industry sludge was in late 1985. We in the industry were surprised at this discovery because in 1984 the industry had, in cooperation with the State of Maine, tested mill sludges and found no traces whatsoever of dioxin.

The trace amounts of dioxin were detected with scientific techniques that are 1,000 to 1 million times more sensitive than the methodology previously available. The new methodology became available only in 1985. This explains why dioxin had never before been associated with the papermaking process—a basic process that has remained virtually unchanged for many years.

When we learned of the trace amounts of dioxin, we became concerned. Our industry has always been mindful of its environmental and health responsibilities. Thus, within a week of that original detection of dioxin, and nonstop ever since, the industry has been engaged in an extensive investigation.

The second point I want to make has to do with our testing to date. The results have been extremely encouraging. The amount of dioxin measured in consumer products is barely detectable. The bottom line is that our product is safe. Similarly, analyses show that our workplace is also safe.

We are still seeking complete answers to the question on receiving streams and the nearby consumable fish.

The industry has contracted with an outside consultant to develop a guidance document for use in site-specific risk assessments of dioxin and furans in the effluent and the impact on receiving streams, including consumable fish, drinking water, and some food chain issues. This document is scheduled for completion in January.

Fish and stream issues are receiving renewed attention by all of our member companies and, as you heard today, certainly by EPA. We hope to have definitive answers as soon as possible, certainly within the next few months.

Thirdly, we in the industry are seeking answers to provide us with further direction. Currently, we know of no commercially available technology which will eliminate dioxin formation. We have only limited and, I might add, inconclusive data on the impact of other bleaching options—such as oxygen delignification that you heard about earlier today—specifically on the issue of dioxin formation. Similarly, we do not yet understand why some conventional bleaching mills, as was shown in the original five mill study, produced no detectable dioxin in either their effluent or in their pulp.

Mr. Chairman, we believe we have made much progress, and at a rapid rate considering the many facets to and the relative newness of the issue to this industry. We've overcome many obstacles.

For example, we've been constrained by laboratory capacity with only two labs in the United States qualified to do this highly sophisticated testing. EPA is currently in the process of qualifying an additional lab for the mill testing work and has recently announced eight additional facilities that may be capable of testing fish samples. Obviously, this would prove very helpful to all of us.

We do have much work ahead of us. This remains a total industry effort. The high degree of professionalism we have found in the Government is to be commended. This work has already yielded us many answers to some very tough and puzzling questions. We are optimistic about meeting the challenges we still face. We intend to employ the same intensity of effort to these remaining questions as was directed at this issue from its very onset.

As such, we remain vigilant in our commitment to quality products and a safe employee and community environment.

I will repeat that as we go through this process, we are equally committed to keeping all parties informed of our activities and the results of our research work. In that regard, with the chairman's approval, I would like to request that the various study results that we have produced to date be included in the committee record.

I would like to also thank the committee for your time and for your patience. We look forward to answering any questions or helping you on dealing with this particular subject.

Thank you.

Mr. NOWAK. Thank you.

We'll now turn to Mr. Richard Diforio, who is vice president of Champion International Corp.

Mr. DIFORIO. Mr. Chairman, thank you.

My name is Richard Diforio. I am vice president environment for Champion International.

My purpose here this evening is to provide background on Champion's relationship to the Pigeon River and to comment on the recent studies conducted jointly by the U.S. EPA and API.

In light of the hour, and in light of the fact that some of the information I had planned to cover has already been covered, with your permission, I will abbreviate my remarks.

As you've heard, Champion International has operated the pulp and paper mill in Canton, NC, since 1908. The Pigeon River is the mill's source of process water and is the receiving stream for the mill's permitted wastewater discharge.

The Canton mill does produce bleached kraft pulp and incorporates a chemical bleaching process that is typical of the processes used throughout the pulp and paper industry.

We have proposed a modernization of the Canton facility that would involve changes in our pulping and bleaching processes as well as changes in our paper manufacturing capabilities, none of which would serve to increase the capacity of the pulp mill. The implementation of this modernization is subject to the issuance of an NPDES permit by U.S. EPA Region IV.

As you've heard, we are engaged in the permitting process at this time. I think that it's important to note that that permit will require Champion to install oxygen delignification in the Canton mill. We have agreed to do this. In addition, the permit requires that we reduce the color in the river by at least 50 percent. We have agreed to do that.

I realize that the hearing today is intended to focus on U.S. EPA's study of dioxin in the Pigeon River. I would like to comment a little on Champion's role in that study plan.

Champion's awareness of dioxin and its relationship to the pulp and paper industry began as a result of the evidence developed by the U.S. EPA in the National Dioxin Study. We immediately took steps to involve ourselves in the studies jointly organized and conducted by the American Paper Institute and U.S. EPA.

Our mill in Lufkin, TX, was volunteered as a subject for the study and was included in the original five mill joint study.

In addition to volunteering our facilities, we have made Champion personnel available to the joint study on an as needed basis.

In addition to the U.S. EPA study plans, Champion arranged for the sampling and testing for dioxin at the Canton mill. The results have recently been made available and reflect that there was no detectable level of dioxin in the effluent going into the Pigeon River.

In closing, I want to assure this committee that Champion International Corp. is committed to working toward an understanding of the cause and effects of dioxin in the papermaking process. Our mills, processes, and personnel are, and will continue to be, available for inclusion in industry studies.

We have seen major progress as a result of a unique Government/industry study plan. We encourage the continuation of this effective process.

I thank you for the opportunity to make these remarks. I would be happy to entertain any questions.

Mr. NOWAK. Thank you very much.

As we're going through this testimony and hearing other people who have been involved—not only in this area, but throughout the country—in this investigation, if you will, the oxygen process which has been brought up as a substitute for the conventional chlorine process that is, I would expect, predominantly in use throughout the United States seems to have great merit. I wonder how far the industry is in looking at that as, at least, a possible interim solution?

Mr. CAVANEY. Mr. Chairman, I'd like to comment on that.

We do have half a dozen oxygen delignification facilities among our bleaching mills here in the United States. Champion itself has some, so they have some direct experience with it.

There's a small matter of confusion on the discussion of oxygen delignification that might be helpful. It's a very attractive alternative in Sweden where they are, and have historically been more concerned, as you heard earlier, about TOCL—Total Organic Chlorides. Sweden was not concerned about dioxin until it was discovered here during our studies. Then they became interested in it.

Our tests to date here in the United States using both conventional and oxygen delignification mills do not indicate any significant difference in terms of dioxin formation between oxygen some delignification and some regular conventional mills. As the five mill study showed, we have some conventional bleaching mills in the United States that had no detectable dioxin in either their effluent or their pulp. We also have some oxygen delignification mills in the United States which do have some readings in that regard.

Because we are on the leading edge of technology in our ability to test here, it's very difficult to get enough readings to be able to understand exactly what variables are at play. We are, however, committed to doing whatever we can as an industry as fast as we can—and money is no object to find if there are ways—to reduce the dioxin levels that have occurred as an unwanted byproduct within our manufacturing process.

Mr. NOWAK. Well, you've heard the testimony of all of the Pigeon River committees, all the others that testified here, and the citizen's committees that are very upset. I'm wondering if the kinds of dollars that are available couldn't be put to a more positive purpose, and that is impressing them with the sincerity of the effort you're putting forth in spending all this money.

Everything we've heard was—at least in terms of what has gone on in the last several years—was that it's a problem that is trying to be avoided rather than be faced by the corporation. I wonder well, what would you say to these people if you had the opportunity to sit with them every day?

Mr. CAVANEY. Possibly I could speak on behalf of the industry. Typically, the industry itself does not get involved in individual permitting decisions because with over 600 mills, we don't have the manpower or the specific expertise to do that.

What we are trying to do is to do the things that individual companies have difficulty doing. That is, concentrating the research and investigative efforts to understand the why of the problem. In that regard, we have been very open and forthright since our first discovery.

We've issued regularly—I believe approximately every 90 days—major news releases providing these various studies that you've been kind enough to allow us to put into the record. We've briefed congressional staff. We've gone ahead and talked to the reporters who are regularly covering this issue. We've also met with anybody who has asked about the issue. We would be glad to continue to extend that sort of open and forthright approach into the future.

If we could wave a wand as a group and have this issue disappear, no one would be happier than we would in that regard.

Mr. NOWAK. Mr. Diforio, do you have anything you could add to that on behalf of Champion to the people you've heard here today.

Mr. DIFORIO. Yes, I do.

I think that if you recognize that we at Champion have been involved with EPA, the State of North Carolina, and the State of Tennessee now actively for approximately 2 years in an effort to reach a compromise permit that would allow us to continue to operate the facility in Canton and also to resolve most, if not all, of the concerns of the citizens along the Pigeon River, I think you'd recognize that we've come quite a long way.

We were presented with a permit by U.S. EPA that was arrived at on a consensus between North Carolina, Tennessee, and the EPA. That is probably the most restrictive NPDES permit that exists in the country today, or would be if it were enacted. We have agreed to all of the conditions in that permit. I've cited a couple.

There are additional ones that I think might be mentioned. One is there would be a significant reduction in the amount of water that we consume and deliver back to the river. If we are allowed to move ahead with that permit, I think that progress will be seen in the near future. We will continue to do that in the hopes that people will agree that the permit is realistic and is technologically achievable.

Mr. NOWAK. Mr. Stangeland.

Mr. STANGELAND. Thank you, Mr. Chairman.

Mr. Diforio, what costs are involved in changing to this oxygen delignification? What costs are involved in changing over your process?

Mr. DIFORIO. Well, there are significant costs. The questions are: what are you changing? And how much of the process are you changing? I think the cost of oxygen delignification, per se, is probably in the $10 million to $20 million range. But that presumes that you could inject oxygen delignification into a system without any other ancillary expenses. That's not necessarily the case in all situations. So it's very much site-specific.

Mr. STANGELAND. Does that have anything to do with the efficiency of the operation at all? Or does it affect your efficiency in any way? Does it affect you efficiency level?

Mr. DIFORIO. Based on what we know about oxygen delignification, it does not necessarily improve your efficiency in terms of manufacturing pulp.

Mr. STANGELAND. Now you said in your statement here that you would be using less water and so, subsequently, discharging less water in the future compared to in the past. How do you adjust your operation to allow for using less water? Have you used more water than you had to use in the past?

Mr. DIFORIO. Well, by virtue of modernizing the mill, we would put ourselves in a position where less water would be required to make a similar amount of pulp.

The permit requires that we meet certain conditions. One of those conditions is that we not deliver more than 35 million gallons a day to the river. Today we operate at about 42 million gallons.

Mr. STANGELAND. For both you and Mr. Cavaney. You are now required by law to pretreat your discharge materials, are you not?

Mr. DIFORIO. Correct.

Mr. STANGELAND. How long has that pretreatment requirement been in effect for you? How long have you pretreated your discharges?

Mr. DIFORIO. I'm not sure I can answer that question in terms of the date.

Mr. STANGELAND. Well, approximately.

Mr. DIFORIO. We've had a waste treatment facility in the Canton mill since the late 1960's. It has been added to over time. We now have primary and secondary treatment. Primary, obviously, was first. Secondary was added.

Mr. STANGELAND. So you are now currently where—when you initially started operation 80 years ago, you just let the water run right on through?

Mr. DIFORIO. Yes.

Mr. STANGELAND. But now you are taking out the sludge in a pretreatment process?

Mr. DIFORIO. The sludge is removed. That's correct.

Mr. STANGELAND. What do you do with that sludge? Apparently dioxin concentration in that sludge would be higher than in the water that's discharged. Would I be correct or incorrect?

Mr. DIFORIO. That is probably correct.

Mr. STANGELAND. So what happens to the sludge?

Mr. DIFORIO. In our particular case, the sludge is taken from the secondary treatment plant. It's dewatered. Then it is trucked to a landfill site—the RGRA type landfill—where the leech or runoff is collected. That is directed back to the primary treatment system.

So, in effect, we have a closed loop when it comes to the handling of sludge.

Mr. STANGELAND. What creates the color in the water? How do you remove color? I understand in a paper process that you color the water. It picks up color from the pulp and from the materials that are handled. The color, in and of itself, is harmless. As the one gentleman testified, which I expect is true, it clouds the water to prevent sun from purifying that water later on.

But how do you remove color? Is it in particle material that can be filtered out and removed?

Mr. DIFORIO. Color can be removed in a number of ways. Color develops in the pulping and bleaching process. It's a result of the lignin that's contained in the tree. As it grows, the lignin is the chemical that binds the fibers together. In order to make paper, you need to remove the lignin.

Mr. STANGELAND. That's a natural occurring substance in the tree?

Mr. DIFORIO. That's a natural occurring substance in the tree.

Mr. STANGELAND. Yes. OK. All right.

Mr. DIFORIO. It is that which delivers color to the effluent.

Now there are a number of ways of removing color. It can be done in the process. Oxygen delignification is a move in that direction.

There are also chemical treatments that can be applied to the color. Part of that can be in the form of a precipitate, where the color precipitates out and then is removed from the effluent and delivered to the landfill.

Some of the color can merely be bleached so that the color bodies no longer have the ability to pick up light. So there's a variety of ways in which color can be removed.

Mr. STANGELAND. What's the CFS flow of the Pigeon, and how would it compare with the Mississippi?

Mr. DIFORIO. I can't compare it to the Mississippi because I don't know what the Mississippi's is. But the average flow in the Pigeon River is about 200 million gallons a day on an annual basis.

Mr. STANGELAND. OK.

What kind of a process do you use in Sock Rapids?

Mr. DIFORIO. In Sartel?

Mr. STANGELAND. Sartel.

Mr. DIFORIO. Minnesota?

Mr. STANGELAND. Yes. That's my district.

Mr. DIFORIO. That's your district, right.

That is a mill of a different type. That is not a chemical bleaching plant. We make different kinds of paper there. We do not have a chemical bleach plant.

Mr. STANGELAND. I see. So it's a totally different process you use up there. I see.

Mr. DIFORIO. That's correct.

Mr. STANGELAND. I'm trying to extrapolate and see why——

Mr. DIFORIO. You really can't make the comparison between the Sartel mill and the Canton mill.

Mr. STANGELAND. OK.

Why, when you volunteered in the original five mill Study did you offer your mill at Lufkin? Did you offer a worse case kind of a mill to look at? Mr. Cavaney wants to answer this one.

Mr. DIFORIO. I can, but I'll let him.

Mr. STANGELAND. OK.

Mr. CAVANEY. When we first started this and we went to the EPA and asked if they would accept a larger number of mills in the original study. It was important to us that we know as soon as possible whether the dioxin formation was isolated in one case or whether it was possibly much broader. So we went to a number of companies who volunteered facilities. Champion was one of those that came forward first.

It was up to EPA, based on the volunteers to say which different types of mills they wanted to take a look at and what geographic area they wanted. From there, EPA took a pick.

It was merely by coincidence that they were looking for a southern mill. There was an interest in getting one that manufactured newsprint. Therefore, Champion's Lufkin mill fit the bill while their Canton mill wouldn't have for that specific case.

Mr. DIFORIO. I would also add that it was our decision to get involved as early as possible. We did everything that we could to be sure that a Champion mill would qualify for inclusion in the five mill study.

Mr. STANGELAND. You say you checked up in Maine prior to the discovery of dioxin and found none up there.

Mr. CAVANEY. Yes, sir.

Mr. STANGELAND. Have you checked the inter-relationship of the kind of wood and pulp that you're using? Is there any indication you can give us as to why you couldn't find anything in Maine and all of a sudden you found it in almost every other instance? Almost every other instance, not every instance.

Mr. CAVANEY. Yes, sir.

There's a very clear reason. It has to do with measurement technology. The instruments that were used to measure dioxin that were available in 1984 and early 1985 would only measure down to the parts per billion. As a result, there were never any detections. We had no history of association with dioxin so, obviously, no reason to look for it.

Mr. STANGELAND. So if you went back now and checked in Maine with the new sophisticated testing, you'd find dioxin there too?

Mr. CAVANEY. Yes.

Technology made a breakthrough. EPA, as part of their National Study, took the new instruments, which now measure down to parts per trillion and quadrillion That's how it was—at that point, in late 1985— discovered.

Presumably, in those places where it exists, it has sort of always been there, but we just didn't know it because of the measurement technology.

The frustration we have as an industry is that there are technological advances occurring on the detection side much, more quickly and more easily than there is on the analysis side. So you're caught in this sort of "catch 22." You're getting readings. You know what you've got. But you can't understand what it means because it doesn't move at the same pace to help you understand what's happening.

Mr. STANGELAND. How much variance do you find in dioxin residue, or dioxin findings in those mills that are being tested using the conventional system, such as the Canton mill, as opposed to those mills using the oxygen delignification process?

Mr. CAVANEY. We have found noticeable variance in both kinds of mills. It's one of the problems you have when you're dealing at these almost infinitesimal levels, and you are on the leading edge of technology. This is why we're having difficulty with the lab capacity issue. We can take the same sample and we'll get two readings that might vary as much as 20 percent or so.

Mr. STANGELAND. I guess I have no further questions, Mr. Chairman.

I may want to submit some for writing. I guess I'd like to know one answer. I should have asked the doctor when she was here testifying.

What effect does it have on me when I wipe my hands on a paper towel done through your process? How many paper towels do I have to wipe my hands with before I have some noticeable effect of dioxin?

Mr. CAVANEY. The risk assessment analyses that we've done are provided as part of the study.

But just briefly stated, we've tested a number of products like paper towels using the same standards and the same risk assessments that the Federal Government would, FDA and EPA.

I believe in paper towels, you're talking about needing a measurable amount somewhere in the range of over 6 million parts per trillion. Before the product would trigger any regulatory concern, the detections that we're getting is papertowels are down in the range of between 7 parts per billion. So we're talking about such significant orders of magnitude that, through what you've just described, it's virtually impossible to get to a point where the Federal Government would have a level of concern.

I might also add that in the documents that we've provided today we have included those accumulated calculations. In other words, a person who reads the newspaper, cleans their hands, and does so forth. They also show, giving the existing levels that are available, that our products are safe.

Mr. STANGELAND. I can see the potential for a higher risk in a coffee filter where I ingest the product that goes through that. But I have a hard time, I have to lick this paper cup a long time to get any effect. I've got to wipe my hands an awful lot.

I guess that dioxin is kind of an unknown. It is proven supposedly to be highly toxic and a carcinogen. Yet the general public doesn't really understand it and can have a terrible fear of it. It can be a real detriment to the industry to be competitive in a world market.

I don't know how you'd convince the public that yes, it's there, but just as in a lot of other food products in the past you find some things that are carcinogenous right here. But this is probably one of the worst. You've got to use an awful lot of that food. Tests in laboratory animals show a tremendous volume you could never ingest—I can recall the curative in bacon. You'd have to eat tons of bacon before it would ever affect you.

But that public health scare is something that we ought to be conscious of. I would hope that the new permit and Champion's efforts down there could resolve this problem. I know Congressman Quillen. It's caused him and his constituents a great deal of concern. You've heard them here today. I'm sure a lot of those concerns are legitimate. I think there are two sides. Hopefully we can work together for the protection of this environment and for future generations to come.

I thank you very much. I may have some further questions, Mr. Chairman, for answers in writing, but I will forego for now. Thank you.

Mr. NOWAK. Thank you.

We'll now turn to Congressman Quillen.

Mr. QUILLEN. Thank you, Mr. Chairman.

I shall be brief.

Let me ask Mr. Cavaney. In the testimony today, there were some charges that API was in collusion with EPA to hide the real facts. They had documentation from a court case and other documentation to charge that. What response do you have?

Mr. CAVANEY. Mr. Congressman, there has been no effort at collusion or any attempt to suppress any data. I think when that court case runs its course, the judgment and the facts will speak to that. As was mentioned earlier also, there has been a FOIA request where I think the Government turned over literally carloads of papers. Since much of our data was in there, that's now available for the public to take a look at.

What I suspect may be of some concerns is that it's relatively unique in this day and age when an industry would step forward on its own and offer to cooperate with a regulatory body to try and solve a problem. That's what we did. We came forward because we said, we don't know anything about dioxin. We do know something about paper. You probably are exactly the opposite. You know a good deal about dioxin, but nothing about paper. By working together we may have a chance of figuring out what's going on. So by the nature of trying to solve this quickly, we thought it was best to pool our resources.

But I can tell you from all of our work with the Federal Government, the EPA particularly, that they have a responsibility to protect the human health. At all times they have acted in that regard. The relationship has been arms length to the extent that they want to know what we're doing. They check what we're doing. They make sure we're using standards that are acceptable to them.

But obviously, we've have gotten a lot of information, as the EPA said this morning, much, much more quickly than we would have had we gone our own way or had we ended up in the courts quarreling over this. So we think that the public interest is served by our continuing to work with the EPA to try and understand what factors are at play here.

Mr. QUILLEN. I don't question that, but that doesn't conform to the testimony and the documents that they have presented to the committee. I'm not on this committee, but I asked for this hearing. It really concerns me that they would present documents quoting correspondence which would indicate collusion. I mean I'm amazed at that.

Mr. CAVANEY. Well, Mr. Congressman, I would welcome the opportunity to meet with you to look at specific documents. I'm just sharing with you our mind set, our approach, our direction from our member companies, and then surprise, at these allegations.

Mr. QUILLEN. Well, I certainly am not making that charge. They have presented the documents to indicate that.

Now EPA testified that they only discovered dioxin in pulp processes in 1985. Yet the Greenpeace documents said that that was well known by EPA in 1980. Under the document that I have before me, a fishery was closed in 1983 in Wisconsin because of dioxin.

Mr. CAVANEY. Mr. Congressman, I can't speak to that specific situation because it involves EPA. But what I can say is that at the base levels that we're talking about being associated with the pulp breaching process, they couldn't have measured low enough of this time to have that detection.

I listened very carefully to that testimony. I believe what was said was something to the effect that EPA knew that there were several chemicals that could potentially react. I think it was more in the nature of extending a hypothesis than saying they actually had a data base that showed testings from any of our mills.

But, again, I'd be glad to even relook more thoroughly and apprise the committee if there's any change in what we know already.

Mr. QUILLEN. Well, I'd appreciate it if you would.

Mr. CAVANEY. Yes, sir. I will.

[The information received from Mr. Cavaney follows:]

This statement may also have reference to the industry's earlier use of chlorophenol-based slimicides. After possible contamination was discovered, the industry has generally, and voluntarily, discontinued use of these agents to control slime build-up in pulp and paper mill systems. The current focus on dioxin formation as part of the manufacturing process came only in late 1985 as the result of detection work done under the National Dioxin Study, and that was a surprise to both EPA and the industry. In 1984, the industry had participated in a study with the State of Maine to determine the components of the industry's sludge. Samples were analyzed for dioxin with detection limits below one part per billion, which represented the best analytical capability at that time, and no dioxin was found. The National Dioxin Study utilizes more sophisticated testing methodology for detection into the parts per trillion and quadrillion. These new analytical techniques led to the most recent detections.

Mr. QUILLEN. Mr. Diforio, we've had many conversations on this problem. I charge that the EPA has not performed its duty in testing the Pigeon River.

The testimony by Gordon Ball, of Newport, said that a headline in the Newport paper in 1914 quoted Champion as stating that they were going to clean up the river. I wasn't born yet. But how long, how long, how long have promises been made that the river is going to be cleaned up.

You stated, and I know that you're sincere, that in the last two years special emphasis has been given to this problem. But in the past 80 years a lot of water has gone down the stream, a lot of polluted water that is, and nothing has ever come about.

I just wondered how serious are we at this point, particularly after your chairman's conversation at an annual meeting of stockholders when he told the representative of the Cocke Country area that Champion was going to clean up the river. How serious are we?

Mr. DIFORIO. I would second what the chairman said. We have proposed a modernization of the mill that I have mentioned. We are prepared to do that. The initiation of that modernization is contingent upon receiving a wastewater discharge permit. With that permit in hand, we will move forward.

Mr. QUILLEN. Well, we have no control over the permit, do we? That's up to the State of Tennessee. I'm sure this hearing is going to have some effect one way or the other. We might be caught in "catch 22" again.

Had the river been cleaned up in 1914, we'd be talking about thousands of dollars. Now we're talking about millions of dollars. I believe you told me that Champion was going to spend around $200 million plus to do the job. Am I correct in that figure? Or is that something that I didn't write down and don't accurately remember.

Mr. DIFORIO. No. You accurately remember that figure. That is the number that you and I have talked about. That is the price tag on the modernization program that we have planned. Again, that's contingent upon receiving an NPDES permit.

Mr. QUILLEN. I think dioxin is the critical point of this hearing. That's why I asked for the hearing. It's so hazardous.

You heard the testimony. 167 people in Hartford, TN have died in the last 20 years as a result of cancer. We know dioxin causes cancer in rats, but it has not ever been conclusively proven that it kills human beings, or causes cancer. But there's no question, because if other diseases are caused in animals, they relate to human beings.

So it's a sad situation, in my opinion, to let it continue to exist. I don't know how many have died in the last 80 years. I don't know how many are going to die in the future.

But if we can do something, and EPA can do something—and it's their duty to do something. I say they have been derelict in their obligation and their duty. We must get down to the business of cleaning up the Pigeon River.

Your being here—and I often remember that the seat can only stand what the mind can absorb. We've all been here today for a long time. I appreciate your patience.

Mr. DIFORIO. Thank you, sir.

Mr. QUILLEN. I'm going to review this testimony. I'm not a member of this committee, but both the chairman and the ranking member were so kind to schedule it. It's now almost 7 p.m. I think we've accomplished a lot. I think that Champion will get the job done. I think API, with its various industries, will cooperate—and you should, both of you.

Mr. DIFORIO. We will. Thank you.

Mr. QUILLEN. That's all, Mr. Chairman.

Mr. NOWAK. Thank you very much.

We'll have an opportunity to review other records.

One of the earlier witnesses stated that they felt that it was possible for U.S. mills to reduce their organochlorine discharges 80 percent by 1992. Have you heard that discussed in your industry circles?

Mr. CAVANEY. We have heard people make that claim. There's no basis on any of the studies that we've done or that our member companies have done to indicate that that's obtainable. It must be emphasized that, currently every balanced kraft pulp mill in the world—even those that employ oxygen delignification—use cholorine in one form or another. In order to remove chlorine, you must substitute something else. That needs looking into.

I suspect—much as our neighbors have in Scandinavia—that ultimately, as new technology goes on, we probably will be reducing the use of chemicals like chlorine. But we need better understanding. Our concern is we would regret it if somebody thinks they've solved a problem by installing a certain fixative, shall we say, and not get at the heart of the problem. That's why it's so important to understand if chlorine is the culprit that's possibly causing this dioxin formation. If so, we'll see if there is a technology to solve it. If it's something else, we'd do the same thing there.

Mr. NOWAK. But hasn't this technology been introduced into Sweden? Isn't it now operating there? Haven't they reduced that considerably?

Mr. CAVANEY. They have reduced the total organic chlorides that are being discharged. Mr. Chairman, they historically have not had secondary treatment in Scandinavia. Therefore, their whole system and their whole approach is much different than ours here in the United States.

But as it relates to the issue of dioxin, there may be a number of different ways to reduce it. That's why we are investigating it. In surden their dioxin detection levels and dioxin readings are at nearly the same levels, or exactly the same levels as some of our own; even though they have oxygen delignification, and we have both over here.

We just had a delegation that was over in Sweden a couple of weeks ago. As it was mentioned by the EPA, all of us are working feverishly at the international, as well as the national level to try and understand what factors are at play here so we can determine if there is a way to reduce dioxin formation to which we are committed to that search.

Mr. NOWAK. Well, I would like to give you the opportunity and keep the record open to give us the benefit of any progress you make in the area of reducing chlorine, or any other process that you find has some at least potential success in this area.

One other thought. You've been here for the whole day, I assume.

Mr. CAVANEY. Yes, sir.

Mr. NOWAK. Listening to witness after witness, they have sometimes not been in total praise of either the paper industry or Champion. That is something that could be worked on. Certainly, as we said before, maybe you could extend some of that corporate know-how in that area to try to solve those kinds of problems with broader explanations. I think all of corporate America is going through this as we're finding more and more reasons to communicate that never existed before.

But we're certainly going to be talking more with EPA to see that, I would hope, the kind of accusation of some collusion that was registered here is not ever found to be in the system. We've got enough problems with the Defense Department already.

We're looking for substantial progress. I think that Congressman Quillen has probably lived with this longer than anybody else. But I know there are other areas in the country that I've started to get calls from concerning this and other chemical problems that are potentially much wider in range than dioxin. So we hope that we have a permit system and a law that works as it was intended to with some type of cooperation by the industries that are involved.

We look forward to doing everything we can to make that work if EPA, or anybody else in this record, will show an indication that we should change some of the process in the near future. So I hope we can get that type of improvement in the law. In the meantime, I look forward to working with yourselves and EPA to make some substantial progress.

The year 1914 was mentioned. I've lived with my neighbor in Niagara County called Love Canal. I know that process started a long, long time ago. But again, it's something we have to face as an industrial society now. We might as well make the best of it from both sides of our vantage points and views.

So if you have other material you'd like to submit, or in the future you develop material, please feel free to send it to us on this committee.

Mr. Cavaney. Thank you, Mr. Chairman.

Mr. Nowak. I want to thank everybody for attending. We're going to look at reviewing this total record, then try to keep up-to-date as progress is made on this and all the other plants throughout the country, and see what further legislation is necessary to make it work.

Thank you very much.

[The prepared statements of Mr. Diforio and Mr. Cavaney follow:]

STATEMENT
OF
RED CAVANEY
ON BEHALF OF THE
AMERICAN PAPER INSTITUTE

260 MADISON AVENUE
NEW YORK, NY

BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES
OF THE
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U.S. HOUSE OF REPRESENTATIVES

JULY 13, 1988

Thank you, Mr. Chairman, members of the Committee. My name is Red Cavaney. I am President of the American Paper Institute, on whose behalf I appear today. The 175 companies who hold membership in API manufacture over 90 percent of the pulp, paper and paperboard produced in the United States.

I am pleased to appear before you today to discuss how the industry has responded to the unexpected discovery of previously undetectable trace amounts -- in the parts per trillion and quadrillion -- of dioxin in some bleached pulp and paper mill treated effluent, sludge and pulp. This is an effort to which the members of API and our separate research organization NCASI* have committed their full resources. This has included using the best science available -- often pushing the boundaries of existing technology -- to get to the bottom of this matter. We are equally committed that the inquiry be conducted in the open with information provided to interested parties as it is generated.

But how did this even become an issue for the pulp and paper industry?

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*NCASI, the National Council of the Paper Industry for Air and Stream Improvement, is the industry's environmental, technical and research organization.

As you have heard from previous witnesses, late in 1985, the U.S. Environmental Protection Agency found traces of dioxin in selected pulp and paper industry sludge during the course of its National Dioxin Study. Although the dioxin found by the Agency could only be measured in the low parts per trillion range, we in the industry were surprised at this discovery. Adding to this surprise was the fact that in 1984 the industry had, in cooperation with the State of Maine, tested mill sludges and found no traces at all of dioxin.

The trace amounts of dioxin were detected with scientific techniques that are 1,000 to 1,000,000 times more sensitive than the methodology previously available. The new methodology became available only in 1985. This explains why dioxin had never before been associated with the papermaking process -- a basic process that has remained virtually unchanged for many years.

When we learned of the trace amounts of dioxin, we became concerned. Our industry has always been mindful of its environmental and health responsibilities. Thus, within a week of the original detections, and non-stop ever since, the industry has been engaged in an extensive investigation to answer the following five questions:

-- How is the dioxin formed and in what amounts?

-- Does it affect consumer products made from the bleaching process and, if so, does it pose any health risk to consumers?

-- Is there any impact on the workplace or our employees?

-- What are the effects on receiving streams and nearby consumable fish?

-- And, finally, can the minute amounts of dioxin formed be reduced or eliminated?

In an attempt to answer the first of these questions -- how is the dioxin formed and in what amounts -- we undertook a joint screening study with EPA to examine five geographically dispersed paper mills which volunteered to be tested. The goal of the study was to develop, with the help of an independent lab, data in which both industry and EPA could have confidence.

This is what we found.

In effluent in three of the five mills, we found dioxin in low parts per quadrillion.

In bleached pulp in four of the five mills, we found dioxin in the low parts per trillion.

Finally, in sludge, we found it in all five mills in the low parts per trillion. Just for perspective, you should know that 1 part per trillion is equal to one second in 32,000 years, and that 1 part per quadrillion is equal to one second in 32 million years.

Aside from the raw numbers, we learned two other important lessons from the five-mill study.

First, even at these minute amounts, there was significant variability among the five mills tested.

Second, given the failure to detect dioxin in any unbleached pulp, we could say that the dioxin was forming as a result of some aspect of the bleaching process. But we could not say -- and cannot say to this day -- exactly where.

Even before the completion of the five-mill study, preliminary results began to confirm the presence of dioxin in some bleached pulps. It became apparent that we would have to address very quickly the second question: Did it affect consumer products and pose any health risk?

This was not an easy question to answer. There were no studies available which could provide us with any ready answers -- no one had ever tested paper or paper products for any such substance. In fact, the testing methodology for an analysis like this did not even exist. Despite these rather formidable hurdles, we felt a strong obligation to find the answers -- for ourselves, our employees, our customers and the public at large -- and we embarked upon this effort even before the five-mill study was complete.

We contracted with an independent laboratory and an outside consultant to conduct the tests. All used methodologies and techniques acceptable in the scientific community and to the federal government.

The results to date have been extremely encouraging. The amount of dioxin detected in consumer products is barely detectable, ranging from none in disposable diapers to 3.8 parts per trillion in paper towels to 14 parts per trillion in non-barrier food packaging. Further, laboratory experiments demonstrated only minimal migration of dioxin and furans -- a related compound with one-tenth the potency of dioxin -- from the personal care products, communications papers and non-fatty food packaging products tested. A higher rate of migration was found in bleached paper coffee filters. Work on fatty food packaging is not yet complete due to difficulties in finding an appropriate substance to mimic the foods during the testing procedures.

The levels of dioxin found to date in all products tested are lower than the levels at which the FDA would have any concern. We are very encouraged by these results. The bottom line is that all of the testing work done to date confirms that paper products are safe.

The third question we posed related to the workplace. Here we wanted to know if inhalation of paper dust containing any traces of dioxin, or worker contact with bleached paper, would pose any problems. I am pleased to report that a risk assessment completed earlier this year makes it clear that since the workplace dust levels are generally below current standards set by the Occupational Safety and Health Administration for general nuisance dust, there is no dioxin-related risk posed to workers through paper dust inhalation. Similarly, because of the very low levels of dioxin detected in the paper and the minimal migration, worker handling of bleached paper does not pose any health concern by a wide margin of safety.

The fourth question related to streams and fish. What is the impact on receiving streams and the nearby consumable fish of the small amounts of dioxin remaining in the treated effluent from some of the industry's bleaching mills?

We are still seeking complete answers to this question. The industry has contracted with an outside consultant to develop a guidance document for use in site specific risk assessments of dioxin and furans in effluent, and the impact on receiving streams including consumable fish, drinking water and some food chain issues. This document is scheduled for completion in January. NCASI is also conducting studies on the accumulation of dioxin in fish. And, at the request of some of the states where we have facilities, we are collecting additional fish samples for testing. EPA is also in the process of testing dozens of samples of fish collected from streams below our mills. To date those analyses have shown that of 64 samples (most involving whole body tests), 19 showed no detectable dioxin or related furans, 40 of the samples were 25 ppt or below, and only five of the samples were over 25 ppt.

Fish and stream issues are receiving renewed attention by our member companies and, as I understand, by EPA. We hope to have more definitive answers within the next few months. In the meantime, we are concerned about those limited locations where fish samples have tested above FDA advisory levels and are cooperating with local communities in addressing these situations.

The final question is whether there is a way to reduce or eliminate the dioxin formation. As you will recall, the five-mill screening study confirmed the presence of trace amounts of dioxin at the mills tested and pointed to the bleaching process as the source, but it did not tell us why there was so much variability between the mills tested or how the dioxin was formed.

The industry is now pursuing a three-pronged approach to these questions. First, in cooperation with EPA, we will be testing bleached pulp, treated effluent and sludge at all 104 pulp bleaching mills in the United States. Second, our researchers have selected approximately 25 bleaching lines where a more in-depth study is being done. At those mills, in addition to the testing done in cooperation with EPA, our researchers will be examining various operating variables to determine if there is some, heretofore overlooked, explanation of how dioxin is formed and possibly provide guidance on how its formation could be reduced or eliminated. A group of member company technical experts and researchers are also examining various testing and project results in the third prong of this work.

Currently, we know of no commercially available technology which would eliminate the dioxin formation, and we have only very limited -- and I might add inconclusive -- data on the impact of other bleaching options, such as oxygen delignification, specifically on dioxin formation. Similarly, we do not yet understand why some conventional bleaching mills

-- as shown in the initial five-mill study -- produce no detectable dioxin in effluent or pulp.

Mr. Chairman, you and the Committee have been very gracious in allowing me to recount the many activities the industry has undertaken since late in 1985, when the initial detections were made. We believe we have made much progress, and at a rapid rate, considering the many facets to and the relative newness of the issue to this industry. We have overcome many obstacles -- for example, we have been constrained by laboratory capacity -- with only two labs in the country qualified to do this highly sophisticated testing. EPA is currently in the process of qualifying an additional lab for the mill testing work and has recently announced eight additional facilities that may be capable of testing fish samples, and this should prove to be very helpful.

We do have much work ahead of us. This remains a total industry effort. The high degree of professionalism we have found at EPA, the Food and Drug Administration, the Consumer Product Safety Commission, the Occupational Safety and Health Administration, and in the States as we have gone forward on the many facets of this investigation is to be commended. This work has already yielded answers to some very tough and puzzling questions. We are optimistic about meeting the challenges we still face, and we intend to employ the same intensity of effort to these remaining questions as was directed at this issue from the very beginning.

As such, we remain vigilant in our commitment to quality products and a safe employee and community environment.

I will repeat that as we go through this process, we are equally committed to keeping all parties informed of our activities and the results of our research efforts. As in the past, all inquiries -- whether they be from the government, the press, consumers or our neighbors -- will be responded to to the full extent of our capabilities. In that regard, with the Chairman's approval, I would like to request that the various study results and our corresponding announcements of these results be included in the Committee record. I thank the Committee for your time and the opportunity to appear today. I would be pleased to answer any questions.

TESTIMONY

OF

RICHARD DIFORIO, JR.

VICE PRESIDENT

CHAMPION INTERNATIONAL CORPORATION

BEFORE HEARINGS OF THE

SUBCOMMITTEE ON WATER RESOURCES

OF THE

U.S. HOUSE OF REPRESENTATIVES COMMITTEE

ON PUBLIC WORKS AND TRANSPORTATION

July 13, 1988

My name is Richard Diforio. I am Vice President-Environment for Champion International Corporation. My office is in Stamford, Connecticut.

My purpose here today is to provide background on Champion's relationship to the Pigeon River and to comment on the recent studies conducted jointly by the USEPA and API.

Champion is a major manufacturer of paper for business communications, commercial printing, publications and newspapers. We are also a major manufacturer of plywood and lumber.

We currently operate eight integrated pulp and paper mills, one pulp mill and one non-integrated paper mill in the U.S.

Champion International has operated a pulp and paper mill in Canton, North Carolina, since 1908. The Pigeon River is the mill's source of process water and is the receiving stream for the mill's permitted wastewater discharge.

The Canton Mill has grown from a pulp mill in the early 1900's to a pulp and paper mill with a daily pulping capacity of approximately 1500 tons.

The mill produces a variety of paper products including envelope papers, copy papers, printing papers, and liquid packaging board, the majority of which is used for packaging milk. Champion's DairyPak Division is one of the leading producers of milk carton packaging in the United States. Champion is also one of the largest manufacturers of envelope papers, accounting for 25% of the capacity in the United States.

The Canton Mill currently employs approximately 2100 people, with 1900 of those employees in Canton, North Carolina, and approximately 200 in Waynesville, North Carolina, just a short distance from Canton where we maintain a facility that converts board and paper manufactured in the Canton Mill.

The Canton Mill produces bleached kraft pulp and incorporates a chemical bleaching process that is typical of the processes used throughout the pulp and paper industry.

We have proposed a modernization of the Canton facility that would involve changes in our pulping and bleaching process as well as changes in our paper manufacturing capabilities, none of which would serve to increase the capacity of the pulp mill. The implementation of this modernization is subject to the issuance of an NPDES permit by USEPA Region IV. We are engaged in the permitting process at this time.

I realize that this hearing intended to focus on USEPA's study of dioxin in the Pigeon River. I would like to comment on Champion's role in the study plan.

Champion's awareness of dioxin and its relationship to the pulp and paper industry began as a result of the evidence developed by the USEPA in the national dioxin study. We immediately took steps to involve ourselves in the studies jointly organized and conducted by the American Paper Institute and USEPA.

Our mill in Lufkin, Texas was volunteered as a subject for study and was included in the original five mill joint study.

In addition to volunteering our facilities, we have made Champion personnel available to the joint study on an as needed basis.

We recognize the desire to determine how dioxin is created as an unintentional by-product in the manufacturing process and what opportunities there are to reduce the potential for creating dioxin. We have worked in conjunction with USEPA and API so that resources are available in a concentrated effort to avoid duplication and to expedite the process. Our personnel are involved in the ongoing USEPA/API studies.

In addition to the USEPA study plans, Champion arranged for the sampling and testing for dioxin at the Canton Mill. The results have been made available and reflect that there was no detectable level of dioxin in the effluent going to the Pigeon River.

In closing I want to assure this Committee that Champion International Corporation is committed to working toward an understanding of the cause and effects of dioxin in the papermaking process. Our mills, processes and personnel are and will continue to be available for inclusion in industry studies.

We have seen major progress as a result of a unique joint federal/industry study plan. We encourage the continuation of this effective process.

Thank you for this opportunity to speak on behalf of Champion.

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WEDNESDAY MORNINGS

July 17, 1988

Carol Raulston
Vice President Government Affairs
American Paper Institute
1250 Connecticut Ave., Suite 210
Washington, DC 20036

Dear Carol,

Unfortunately, I was unable to ask a question at the Water Resources Subcommittee hearing on July 13. I understand the panel discussed the cost of using the oxygen delignification process at the paper mill on Pigeon River. In addition, it would be helpful to know the expense to American paper producers of using this process.

Consequently, I would appreciate your organization answering the following questions and submitting answers for the record.

o How does the cost of producing paper by the oxygen delignification process compare with the process currently used in the United States?

o How would changing to the oxygen delignification process affect the American paper industry?

Please submit your responses for the record to Joseph Italiano, Editor, Committee on Public Works and Transportation, 2165 Rayburn House Office Building, Washington, DC 20515.

Thanks for your cooperation. Please do not hesitate to contact me if you have any questions. Until then, I remain

Very truly yours,

Fred Upton
Member of Congress

FSU:cc

PLEASE REPLY TO WASHINGTON OFFICE UNLESS INDICATED: ☐ ST. JOSEPH ☐ HOLLAND ☐ THREE RIVERS

INDUSTRY STATUS REPORT ON DIOXIN AND PROCESS ALTERNATIVES

August, 1988

OVERVIEW

The current level of scientific knowledge on the mechanisms by which chlorinated dioxins and furans (TCDD/TCDF) are formed is inadequate for identifying specifically which aspects of current commercial pulp bleaching processes are implicated in their formation. Companies in the U.S. pulp and paper industry, collectively and independently, are engaged in a vigorous program of research to improve the understanding of the scientific and technical factors involved in this issue. This research, which is expected to yield useful results in a 12-24 month timeframe, will provide a reasonable basis for decisions on any changes in delignification and bleaching technology which may be appropriate.

In the meantime, an array of new processes and approaches is being tested and/or installed throughout the industry. This will provide a practical basis for the assessment of appropriate options for both new construction and, where called for, the modification of existing processes.

In this regard, much of the investigation has revolved around the use of chlorine-based compounds to bleach wood pulps. It must be emphasized that, currently, every bleached kraft pulp mill in the world - even those that employ oxygen delignification (OD) - uses chlorine in one form or another in its bleaching process.

OXYGEN DELIGNIFICATION AND CONVENTIONAL CHLORINE BLEACHING

It is yet to be demonstrated that mills placing relatively greater reliance on chlorine compounds to bleach pulp cannot achieve the same low levels of TCDD/TCDF's as those which precede such bleaching with oxygen delignification.

Indeed, state-of-the-art analytical methods have demonstrated that U.S. mills using a conventional chlorine bleaching technology or an OD technology can both produce pulps, sludges and effluents without detectable levels of TCDD/TCDF.

Conversely, data on analyses of pulp, sludge and effluent from Swedish and North American mills using OD are expected to reveal detectable levels of TCDD/TCDF comparable to those found at some U.S. mills using conventional bleaching technology.

Furthermore, recent experimental process changes at a conventional bleaching pulp mill, involving redirection of extractive bleaching liquors from an otherwise closed water cycle (aimed at avoiding another environmental problem), have lowered the level of TCDD/TCDF's detected by 50%. For other mills, however, such a process-related change is not an option.

In sum, preliminary information would indicate that some conventional bleaching scenarios can yield results similar to those achieved with OD. And, at this point, it cannot be concluded that OD offers a technology which will

continued...

totally eliminate TCDD/TCDF's from wood pulp bleaching processes. Indeed, modifications to conventional bleaching processes in existing facilities could prove to be more timely and cost effective than conversion to OD.

COMPARATIVE COSTS OF OXYGEN DELIGNIFICATION AND CONVENTIONAL BLEACHING

There are currently five U.S. pulp mills using an OD process and one other using oxygen to bleach pulp. Their combined bleached chemical pulp capacity is 6,100 tons per day (tpd). The remaining 98 U.S. bleached chemical pulp mills have a capacity of 74,100 tpd.

On the basis of recent experience, the capital cost of converting an existing typical (750-1000 tpd) pulp mill using a conventional chlorine bleaching process to OD is estimated to be at least $20 to $30 million but probably as much as $40 to $50 million when the mill requires expansion of ancilliary equipment such as evaporators and brown stock washers. Since it is rare for an existing mill to have reserve recovery boiler capacity, the additional liquor treatment requirements of the OD process could raise the total cost of conversion to at least $80 million.

If the remaining U.S. conventional bleaching chemical pulp mills were indeed required to convert to OD, the total capital cost would be at least $3.0 billion (or $40,000 per daily ton of current U.S. bleached chemical pulp capacity.)

For a new, greenfield bleached chemical pulp mill with an optimal capacity of 1000 tpd, the incremental capital cost of installing self-sufficient OD technology could be $25 to $35 million more than for conventional chlorine bleaching, in part because of the higher comparative cost of an oxygen generating plant (typically $12 to $14 million) but also because of the larger recovery boiler and evaporator capacity required.

OTHER CONSIDERATIONS IN OXYGEN DELIGNIFICATION

- With OD, additional pulping liquors and filtrates must be recycled and processed through a recovery boiler. If existing recovery boiler capacity is fully committed - as is usually the case - OD will reduce pulp mill throughput. The loss could be as much as 15% of the mill's capacity, based on the experience of one U.S. mill which converted to OD.

- While opinions among manufacturers differ, some consider that the quality of OD-produced pulp suffers in viscosity and strength parameters compared with conventionally bleached pulp. Thus OD pulps may not be technically suitable for all grades of paper.

- OD does improve waste water color but only because more of the potentially discoloring material is diverted to the recovery boiler.

- Liquor solids from the pulping phase of OD which are directed to a recovery boiler represent an additional source of self-generated energy.

- Operating costs in the bleaching phase of OD may be lowered by reduced chemical requirements.

- Waste water management has not followed the same course in U.S. and Swedish pulp mills because of different environmental objectives which require alternative solutions:

  The U.S. industry tended to elect biological treatment of effluent, largely to address more stringent standards regarding oxygen demand but additionally because this type of treatment also reduced "biologically active" (i.e. toxic) chemicals.

  On the other hand, the Swedish industry elected some years ago to modify its processes primarily through adoption of OD which was a lower cost alternative than effluent treatment and which could meet currently less stringent Biochemical Oxygen Demand (BOD) standards than required in U.S. mills. Today, the Swedish industry is having to follow the U.S. lead by installing secondary treatment to supplement OD.

- If a reduction in the proportion of lignin in wood pulp prior to bleaching is a significant factor in TCDD/TCDF formation, other commercial extended-delignification processes as well as substantial substitution of ClO_2 for elemental chlorine have been developed as alternatives to OD.

- If the issue focuses on Total Organic Chlorine (TOCl) rather than on TCDD/TCDF, OD appears to have advantages over conventional bleaching. However, there is presently no reason to believe that the control of TOCl can act as a surrogate for addressing any environmental or health concerns associated with particular chlorinated compounds such as TCDD/TCDF's which are an extremely small fraction of the compounds measured by the TOCl procedure.

FACTORS AFFECTING DIOXIN GENERATION IN CONVENTIONAL BLEACHING PROCESSES

Factors which could influence the generation of TCDD/TCDF's and which are the subject of intensive scientific study, are believed to include:

- When TCDD/TCDF's are formed in a conventional bleaching process, it appears to occur largely in the chlorination stage, but the conditions which lead to their formation are not yet understood.

- TCDD/TCDF generation may be reduced by decreasing the relative proportion of lignin in pulp prior to bleaching (expressed as a kappa number) but only if it is proven that lignin is the source of precursors for TCDD/TCDF's.

- Thorough washing may remove unchlorinated precursors from unbleached pulp, thereby reducing the chances of TCDD/TCDF's being formed in subsequent chlorination.

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- Extensive washing may flush TCDD/TCDF's from bleached pulp, but the compounds are likely then to be transferred to the effluent stream.

OTHER BLEACHING PROCESS ALTERNATIVES AND PRODUCT QUALITY

- Companies in the pulp and paper industry and chemical manufacturers are independently investigating the economic and environmental efficiency of alternative bleaching agents such as oxygen alone, ozone, hydrogen peroxide and oxides of sulfur and nitrogen. However, none of these alternatives can be expected to achieve the same levels of pulp brightness as with chlorine.

- The industry's process options are a function of minimizing environmental impact and maximizing customer satisfaction with its products. These factors need not be mutually exclusive.

Ronald J. Slinn
August 10, 1988

Mr. **Nowak**. The hearing will be adjourned.

Mr. **DiForio**. Thank you, Mr. Chairman.

Mr. **Cavaney**. Thank you, Mr. Chairman.

[Whereupon, at 6:48 p.m., the subcommittee was adjourned, to reconvene at the call of the Chair.]

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